

ITEMS OF INTEREST.

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Editorial.

BE INDEPENDENT.

Would you succeed in this world? Be independent; lean upon no one; be determined to "work out your own salvation with fear and trembling." As long as you are dependent on others, you will never be a man of strength, influence or character. It is well for children to feel their dependence, and to be docile to the leadings of others; but a *man* should "put away childish things," and, among them, childish dependence. Thankful for the nourishing care, the wholesome restraints and the maturing discipline of childhood, we must now, as we come to manhood, walk out into the world with the proud consciousness that we may and can and will stand upon our own resources.

Of course, no one can be independent in an absolute sense. We are all, in many things, dependent upon each other. But even in youth there may be a self-dependent independence to be esteemed. The boy who earns his own pocket money and keeps it, or spends it judiciously, will be the man whose money will be too bulky for his pockets. Generally the boy is the man in miniature. If in boyhood he is a whining beggar for what he should earn, or leans upon others when he should stand alone, or relies on the judgment of others when their views should only be a help to mature his own, he will surely come to nothing; or, at best, he will be "a second fidler," with little honor or recompense for what he does.

There is always something for the self-reliant and resolute to do. A time may elapse, after he is in real earnest to live on his own earnings, before he sees it—a brief time in which he is unconsciously preparing for what is coming—but it is sure to come; generally as soon as he is prepared for it. It may not be what he expected; for if it

were left to his choice perhaps he would climb too high, and fall, or walk too far, and tire, or choose another's work, and fail.

Often, when an earnest seeker has looked everywhere else for appropriate labor, he finds it at his feet. The first may be very humble work, but better saw wood or black boots, if need be, to have your own money to spend. Once in the road of self-reliance, you will be astonished to see how wonderfully one work, be it ever so insignificant, will prepare you for other more important, profitable and congenial, till finally you will find *your* work—your *life* work, for which nature has specially adapted you, and circumstances have willingly given you, as you have made yourself worthy of it.

Independence is a proud eminence. To reach it, we must carve out of the solid rock each step of our ascent till we reach it. Then that eminence is ours, for we have earned it; the way thither is ours, for we have made it; and the glorious advantage is appreciated, for our own exertions have prepared us for it.

Young woman, don't live in idleness, in hopes some rich suitor will come along and marry you. Be helpful to those about you, and you will soon be sought as a real "help-meet" for one who appreciates worth. Men, like children, sometimes run after butterflies, but not to keep them—it is only to play with them. It is gold—pure, useful and precious—they seek most earnestly, and of which they never tire.

Young man, don't be ashamed of hard work; rather be ashamed of the young lady or the dandy who thinks less of you because you are engaged in it. Hard work—mental and physical—will prepare you for the great duties, responsibilities and privileges of manhood. Without a penny in your pocket or a friend to help, with your mind well filled and drilled, your hands well skilled by perseverance in the intricacies of labor and your heart and spirit kept healthy by useful employment, you may succeed.

And this lesson of independence may be learned and practiced to advantage by us who are older; and even by us who call ourselves professionals. Among us there are too many imitators—too many dependent upon the opinions, advice and influence of associates, or of the authors read—too many who are wavering, changeable and uncertain—too many who have not with sufficient thoroughness matured their own thoughts and prepared themselves for the work before them. Such persons cannot trust themselves, and dare not mark out an independent course, and with independence maintain it. In our earnings, there are too many of us who live beyond our income—so far beyond our necessities that we are dependent on what we owe, or upon our immediate receipts. In such a position there is no manly independence. Let us save a little from each day's earnings—however limited our income. This will soon take us from the ranks of the dependent poor into the company of the rich and independent.

There is something mean and self-accusing and depressing in dependence. It is very humiliating to find, every once in a while, that we have come to our last penny; and, perhaps, just when we really need five or ten dollars, that we must borrow it, or be embarrassed for the want of it. But there is something manly and inspiring in a well furnished cozy home *paid for*, and a few dollars laid by for a rainy day. This is the independence we may all possess. The man who spends as fast as he earns, and therefore lives on the brink of poverty, perhaps earns as much as his neighbor who is forehandy—often much more—only the latter saves and enjoys what the former spends for effeminate, questionable, and unsatisfying gratifications.

WHAT IS THE USE OF FRETTING?

Prove yourself above annoyances and push ahead. It is the little cur that feels so often insulted. He is sometimes annoyed at his very shadow. The mastiff walks on in proud unconsciousness of petty disturbances. Let some great thought fill your mind—have an absorbing purpose—be thoroughly busy, and you will have neither time nor concern for petty annoyances.

You cannot afford it. It is too exhausting. It costs a great deal of valuable brain force to fret. Save this nervous power for something more useful. No one thanks you for the expenditure. In proportion as you fret, you become a nuisance to your family and friends, while you repulse valuable patients.

At any rate, never fret without smiling, and being sure you are receiving good pay. Then you had better ask the consent of your wife, and go where no one can hear you, with a looking-glass before you.

SOME THINGS DISGUSTING IN OUR PROFESSION.

We doubt if there is any calling more trying to the patience than dentistry. Though we do our best to please, some patients cannot be pleased, and they are so unreasonable and impertinent we cannot help at times being disgusted with the whole business. Let us take a few instances in artificial work to illustrate:

“I wish you would give me your opinion of my teeth; can they be saved, or must I lose them?”

After proper examination we inform our fair patient that her teeth can certainly be saved, and that it will be a great pity to lose them.

“But wont it hurt me to have them filled?”

“Of course, it will not be painless.”

“And wont it cost more than new teeth?”

“Yes, I presume it will, but you will then have your own teeth.”

"Will you warrant them not to decay any more?"

"Of course not. If I repair them so they will be as good as the good Lord made them, they will be subject to decay."

"Out with them, then; I'll have a new set."

"I could not extract them. As a professional man I must be my own judge of the propriety of extracting teeth. Do you think a surgeon would cut off your leg just because you thought a sore on it would cost more to cure than would be the expense of an artificial limb? or because the ailment, if cured, might return?"

"Well! if I can't have my own way about such a matter as this, I'll know the reason. You are a pretty dentist to dictate what I shall do."

Away she goes disgusted with me, and I disgusted with the whole business of my profession.

Again :

"Do you make teeth?"

"Yes."

"What will you clear my mouth of the few old stumps I have, and make me a new set for?"

(She knows better than to say "a few." Such patients put the number low that the cost may be trifling. Examination shows, in this case, eighteen old stumps.)

"The preparation of your mouth will cost you five dollars, and an upper and lower set of teeth, twenty-eight dollars."

"O, I can do better than that. Why, Dr. Brown says he will clear my mouth for a dollar, and give me a good set of teeth for fifteen dollars!"

"If you think he can clear your mouth as well as I can, and make you as good a set of teeth, of course, he is your man."

"But my husband wants me to come to you; and I have seen some of your work that pleases me."

"Then why did you go to these other men first?" (For she had really gone the rounds of all in the town.)

"Because I was told your prices were higher than any one else, and I thought I would just stop in to two or three, and see what their prices were."

"Well, madam, I shall be pleased to do your work, but the price I have put on it is no more than I think reasonable."

"But Dr. Jones says you do not warrant your work at that?"

"I am liable to make mistakes, and I am quite ready to correct them, but it is impossible to warrant that my work shall meet the judgment of every critic. In filling teeth or in making artificial teeth I use my best judgment and skill; and though I take suggestions from any one, I assume that I am the best judge in such matters. It is because my judgment and work generally prove good, that my reputa-

tion is what it is, and I am able to charge a fair price for my services—more, I admit, than some you have visited.”

“I will give you twenty dollars——”

“No; if you want my work you must pay my price.”

And she leaves disgusted, and I feel disgusted with this feature of my practice.

(Another patient enters. She has come to have her teeth made.)

“Now, doctor; I want the smallest, prettiest, whitest, cutest looking teeth you have in the office.”

“But, my dear woman, you are not the smallest, prettiest, whitest, cutest looking patient I have had in my office. Your large bony frame, your peculiar features and your dark complexion will not allow such teeth as you describe.”

“Well, I’m not going to have such large, homely, irregular teeth as were extracted. I would never have had them out, if they had been pretty.”

“It’s possible they may be improved upon, but we must show much caution in deviating from your natural teeth. It was probably a folly to have had them extracted.”

“O, it was my own choice. Will you let me select my own teeth?”

“Certainly, if you will be responsible for their appearance; but an after change will cost you half the price of the first set.”

“All right. Take the impression, and to-morrow I’ll come in with my mother and my sister to select the teeth.”

(Next day about two hundred sets of teeth are given them from which to select.)

“Here they are, doctor; don’t you think they are just as pretty as they can be?”

“Not for you; but I’ll have them on a model plate in a short time, and you can see for yourself.”

(They were “charming,” “splendid.” And so said they all.)

“Did you make Mrs. Brown’s teeth, doctor?” asked an intelligent friend, a few weeks later.

“Yes, why?” (I fear what is coming, for I was guilty of a folly in yielding my own judgment, which I knew to be right, for hers, that I knew to be wrong.)

“Now I have averred they did not come from you. They are the laughing stock of all the town. How could you have selected teeth so inappropriate?”

“They were her own selection, and I understand she likes them very much.”

“That may be, but everybody cannot know they were her selection, and if they did they would reflect upon you for allowing it. All

who know them to be your make, speak disparagingly of your judgment."

It was not three months before the lady herself returned, saying she was very much dissatisfied with her teeth: they were too small and too white, and somehow did not look at all like her. "Don't you think so, too?" said she.

"Yes, I do," I replied.

"I must have them changed; that's all about it. But, doctor, you will not charge me for just changing the teeth? These will do for some one else."

"Will you take in return teeth that some one else has used?"

"O, no, doctor; but can't you cleanse these, so that no one will know they have ever been used? Dr. Clark says they can be. He offers me five dollars for them in exchange for another set."

"You are at liberty to go to Dr. Clark for your next set, but I can do no more than keep my contract with you."

"Well, I am advised by all my friends not to pay you one cent. They say it is the custom for a dentist to make teeth over, if they do not suit. People say they do not at all become me, and are surprised when I tell them who made them."

"Yes, I did wrong in yielding to your judgment in their selection. I have no doubt suffered already in my reputation more than you paid me for them."

"Well, then, just change them, and you may make your own selection, and I will tell everybody just how it was. If you don't, your reputation will suffer more still, for I tell everybody you made them."

"And do not tell them you selected the teeth?"

"I did at first, but when I found everybody laughing at them, I was ashamed to."

"I can do no better than I promised you; and the very fact you give the impression that their appearance reflects my judgment does not make me any more inclined to favor you."

She left me muttering indefinite threats that my reputation should suffer more than seven dollars and a half worth. I believed her, and was disgusted with myself and my business.

RECREATION.

What is recreation, and how shall we find it?

Are not many of us a little indefinite in our notions of recreation, and a little inconsistent in our way of seeking it? What is recreation to one person may be quite the opposite to another, and what is essential to recreation for one class may be injurious exposure or foolish excess for another class.

Persons of all vocations and of none, in sickness and in health, of all ages and conditions, are fast getting the idea that there can be little recreation without an abandonment of legitimate business—of the usual associations and surroundings—and hieing away to the mountain or the sea shore ; and, when there, seem to make but little distinction between recreation and dissipation.

Recreation is to create anew—to re-create—and consists of those mental and physical efforts which give new life to wearied or exhausted energies. Some doubt whether we Americans take recreation enough. We undoubtedly overtax our energies in business. Whether we should counterbalance this folly by utterly abandoning business to find recreation at a distance, is a question. Instead of so overtaxing ourselves during three-fourths of the year as to find it necessary to spend the other fourth at the sea shore, on the mountain, or in foreign lands, would it not be well to be a little wiser in spending the whole year? Dentists are not generally overtaxed in their legitimate labors ; and when there is “ a rush ” it is generally possible so to divide and diversify work as to make it quite tolerable. As to its labors being confining, sedentary, or too much in doors, this is much as we will it. Are we not sometimes too lazy to take the recreation that is within our reach? Are we not sometimes a little too particular as to the kind? An hour at the wood-pile is pretty good recreation for a man of sedentary habits, though it may be more pleasant to ride the velocipede. A couple of hours in the garden well employed improves the garden, and might improve us if we went into it with the vim we row a boat or ride a horse. Are not “ we professional men ” too much afraid of hard work with the axe or the hoe?

The overburdened who cannot, or will not, find recreation at home, should seek it elsewhere—some at the seaside, others at the mountains, and still others in the wilderness with fish-hook and gun. Gormandizing and drinking at seashore hotels, expecting listless laziness to work off frequent debauches, is not recreation ; neither is frequent exposures to the scorching sun and evening dew, nor such excesses that bring one home to legitimate work too exhausted to enjoy it, if not too dissipated in mind and energies to care for it or its responsibilities. A few years ago very few thought it necessary to have their annual vacations to recuperate health ; now few, with even moderate means, think they can live without it. It is a kind of epidemic.

Of course, if our business and means will allow, it is well to take a vacation in a pleasant trip to the wilderness or to the sea. We are now emphasizing the folly of so living through the year as to make such a vacation a *necessity*. If we leave home for pleasure, let us leave it at least with enough health to enjoy rest and change, and come back to our work really re-created.

Thoughts from the Profession.

THE MEDICAL AND DENTAL PROFESSIONS.

BY W. E. DRISCOLL, OF BEDFORD, IND.

Dr. M. A. Webb, in a late paper says: "Years must pass before the intelligence of the dental profession will equal that of the medical in matters outside of their respective callings." If this is true, no one should want to conceal the fact, but rather to keep it before the dental profession until it is demonstrated that even "years" will not suffice to wipe out our disgrace. (Any one disposed to accept Dr. Webb's statement as true, and to make it an incentive to improve himself or others in the profession, can skip the rest of this article). I hope we are not worse than the medicals in matters outside of our calling, for the following reasons: Physicians have as many opportunities to give good advice as to the care of the teeth as dentists, but there is so little evidence that it is a common practice with them, and so much evidence to the contrary, that I suppose it the most charitable view of the subject to say it was lack of proper understanding of the matter with them. I have believed this because I have heard a physician with a state reputation object to the removal of salivary calculus because he regarded it as nature's protection to the teeth; and because others have sent patients to me with alveolar abscess, with the direction, not for me to find out what was needed, but rather a command that I kill the nerve! He, no doubt, thought a dentist did not equal a physician even in matters pertaining to dentistry. This sending patients with an imperative command as to what the dentist must do, instead of leaving the poor fellow some choice in the matter is rather too common. It has come sometimes in this shape: The (superior) surgeon and physician has broken a solid molar off even with or below the process. To make it look as though he was not at the end of his rope, he assumes to dictate in a message to the dentist that he "take a hook and pull the blamed thing out." I leave it to your readers as to how much could be done with a "hook" in such a case. I have also supposed it was ignorance that led them to extract permanent superior lateral incisors and leave the temporary cuspids, because the laterals looked smaller, and, of course, more like "baby teeth," thus permanently disfiguring the mouths of perhaps their own children. I have thought it lack of intelligence in them that they could not tell when to extract temporary teeth generally, and which were temporary, but still did not hesitate to operate when a dentist was immediately at hand who knew this much

at least. I have thought it did not indicate an intelligent appreciation of their responsibility, when they extracted many teeth that could be easily saved, and especially when they assured the confiding patient it would not do to fill a tooth after it had ached.

I have also thought dentists as intelligent as physicians in matters pertaining to their professional duties. This belief was strengthened by the fact that a dentist must give positive relief to his patient, while the physician may dose his indefinitely, even unto death, and may receive as much credit when he causes the death of his patient as when he cures him. But the dentist must give positive results or he is condemned. People can see if the dentist is at fault, but very seldom if the physician is. Because I could not see this vaunted superiority in any very clear light, I have never joined in any petition to them to be recognized in any way they did not choose to do without petitioning. Let those shine in the reflected light of the medical profession in "sections" or any capacity that makes them feel best, but the rest of us, I presume, will have to do what we can to honor our own profession if we are to have any honors at all, and such as they are, let us not show we are ashamed of them by prostrating ourselves before any other profession.

GLUCOSE.

BY J. F. SANBORN, M.D., D.D.S., TABOR, IOWA.

In the May No. of the "Items," page 158, there is an article by Dr. W. C. Barrett, of Buffalo, entitled "Glucose and Decay of the Teeth," in which he says: "So I hold glucose to be one of the most harmless, one of the most nutritive, one of the best foods that we have; and its discovery—the discovery of the process of making it—is a thing which should rank among the greatest discoveries of the world. I think the sugar is better for being mixed with the glucose. It is more easily digested, and from a physiological standpoint, it is improved," etc., etc. From a physiological standpoint Dr. Barrett's statements are quite in contrast with ours. As your journal has so wide a circulation, no doubt many of its readers have not carefully investigated the subject, and might be led into the use of glucose; whereas, if the other side of the question is presented, they might be as careful as we are to select sugars as free from glucose as possible. It is a fundamental law of animal life, acknowledged by all modern *physiologists*, that animal life is dependent on the vegetable kingdom for its food, either primarily or secondarily, and that any changes in the organic structure of the vegetable molecules by chemical action destroys the life-giving properties, so that if used as food or drink the vital forces of animal life are not replenished thereby. The artificial change of starch to sugar by chem-

ical action is very different from the same change by the process of vegetable growth. When we store our winter apples for future use they are hard and sour, but when the ripening process has changed the starch to fruit sugar, the fruit becomes good, wholesome food; but crush and express the juice, and fermentation will change the starch to sugar and the sugar to alcohol and the alcohol to vinegar. Fermentation is a rotting process, wherein the *life-giving force* is destroyed. In the manufacture of beer the starch of the barley (C. 12—H. 20. O. 10) is changed to glucose (C. 12—H. 24. O. 12) by fermentation. At this stage the process is stopped by heat, and the product is sold as malt; by a further process of fermentation alcohol is produced from this sugar, and when it is ready to be sold and drank there is more nourishment in a penny loaf of bread than in a whole keg of beer. Alcohol and vinegar are always the products of the destruction of sugar, and there is no physiologist that believes there is any nourishment in either. All vegetable substances are not good for food, but those that are are *developed* by the forces of nature, and are *appropriated* to build up the tissues of the *bioplasts* of animals or persons, while the *vitality* therein stored up becomes the *life-force* of the bioplast, but in the change of the relation of the atoms of the molecules by chemical action, the *vitality* as a *force* has been evolved, and there is no *life-force* to be obtained from it, because it is not there. The matter may be there, but the life-giving properties, as *life-force*, have been destroyed. The bee will store up the sugars found as the product of growth, but though these sugars have the same chemical elements as glucose, the bees will thrive on honey, but if confined to a diet of glucose, die.

There is this difference between fruit sugar and glucose: The former is like the living, healthy, active person, the latter like a corpse. The body is there, but the soul is gone. We consider it far from being in any respect nutritious, and decidedly an unwholesome article of diet. On page 159 the Doctor says: "There should be no sulphuric acid in the mouth; even although some traces be left in the glucose, it will be neutralized by the carbonic acid in the breath, so you have carbonate of lime again." Sulphuric acid being one of the strongest acids, and carbonic acid one of the weakest, how is it that the weaker shall decompose the stronger and form the carbonate of lime? The Doctor has it a little mixed, or we have. In Bloxam's Chemistry, page 211, sec. 146, we read: "At common temperatures sulphuric acid has a more powerful attraction for bases than any other acid, and is, therefore, capable of displacing all other acids from their salts." Then, according to Bloxam, the sulphuric acid left in the glucose in its manufacture is not displaced by the carbonic acid in the breath, or by any other acid found in the mouth, but it remains in the glucose as sulphu-

ric acid. That which has united with the lime to form a sulphate of lime, has been precipitated and ought to be removed, so that the sulphuric acid is there to perform its destructive mission. This is enough to condemn glucose as an article of diet, even if there were no other reason for it.

CAPPING OF EXPOSED NERVE-PULPS.

BY J. N. FARRAR, M.D., BROOKLYN, N. Y.

Although the successful capping of an exposed nerve-pulp is not now considered by most dentists so great a victory as in former times, yet there are still some members of the profession who continue to ask the almost stereotyped question: "How can an exposed nerve-pulp be successfully treated?" Such people appear to be ignorant of the fact that the capping of pulps, if done properly, is among the simplest operations in dentistry.

Without pretending to offer anything particularly new upon the subject, I take pride in saying that there is enough old stock of information, especially in regard to materials, if properly applied, to enable any person of ordinary skill to perform this operation, not only successfully—say in ninety-nine cases in a hundred, and without causing much, if any pain—but it can be done with the greatest facility and rapidity. In fact, there is no plugging operation more simple, if carefully performed with proper appliances. To show how this may be done, is the object of this paper.

There are a very few cases of exposed nerve-pulps so far degenerated and diseased that it is impossible to reinstate them. Such pulps follow but one course, whose destination is, sooner or later, death; but where to draw the dividing line, so that we may feel positive as to which side the more doubtful cases belong, can only be learned, approximately, from experience; and the more mature the judgment exercised in discriminating between those that are amenable to cure and those that are not, the greater will be the per cent. of success. Again: there are now and then cases which may be saved by great care on small chances, though perhaps in a sickly condition. Such cases may do to experiment upon, but I question whether it pays the operator or patient to "always attempt" to do so. Patients generally do not care to be experimented upon, and then suffer from the consequences.

Although I do not find use for arsenic more than four or six times a year, I am not one of those who say they "have thrown the bottle away." In its proper place it is valuable. I think it is about as absurd to say that every pulp can be preserved alive, as it would be for a physician to say that the life of every patient can be saved. "Common sense" is an excellent thing to treat exposed pulps with.

There are three principal conditions under which so-called exposed pulps are found ; those exposed by accident from causes without, such as by a drill ; those that have become entirely exposed at some place, caused by caries ; and those which are still covered with vestiges of decalcified dentine.

As all of these conditions, when the pulp is not too near the sepulcher, may be successfully treated by the same process, an explanation of the second variety—the one that is the most difficult—will be all that is necessary.

Notwithstanding it is contrary to some “high authorities,” I do not think it proper under any circumstances, to apply an irritant, like oxychloride of zinc, directly upon an exposed pulp. To do so is, in my judgment, not only barbarous to the patient, but unnecessary and unscientific, causing needless pain, and sometimes death of the pulp, and *perhaps* abscess ; though it does not necessarily follow that the death of the pulp always leads to abscess, or even occasion pain.

For a flooring to the cavity in the tooth, and a roof to the crown portion of the nerve-pulp, there is no material equal to nature's own (as advocated years ago), viz., the dentine ; though it may be decalcified, and even somewhat further degenerated, provided it be rendered antiseptic, so that it will not further decompose.

After proper preparation of the cavity, carefully preserving intact as much of nature's covering as is useful, it should be saturated with a mixture of wood creosote and morphia.

Creosote will not only destroy the life of all foreign organisms that may be present in the degenerated dentine, but it also will preserve the decalcified dentine from further degeneration. Having thus rendered this dentinal floor of the cavity antiseptic, we may place a thin flooring of non-irritant plastic material over it, covering also any portion of the pulp that may by chance be exposed. But as all “non-irritant” capping compositions yet known have but a slight degree of hardness, and are liable to crumble, I prefer a harder material, and have successfully used a varnish composed of fir balsam dissolved in chloroform.

In preparing the dentinal portion of the cavity, it is well to cut away the walls and floor, so that not only the filling, as a whole, may be firmly anchored, but that the ends of all dentinal tubes, leading directly from the cavity to the pulp, may be covered with varnish.

Though not, absolutely essential to success in small exposures, it is sometimes well to carefully place over pulps extensively exposed a small concave platina cap, gently forcing it down into the varnish until it rests firmly upon the borders of the hole through the dentinal floor of the cavity where the pulp is exposed. Except in cases where there is large exposure of the pulp, I think that such caps are not only clumsy

but superfluous. A small piece of something else, such as writing paper, or perhaps better, bibulous paper, will often answer the purpose better. All that is necessary is to prevent the first superincumbent material from displacing the varnish.

Having deposited the proper quantity of varnish—which should be very limited—upon the exposed point of the pulp, it should be carefully made to spread over the floor of the cavity with a delicate instrument, until all the dentinal tubes leading from the cavity directly to the pulp are covered, in order, as before suggested, to cut off all communication that may cause pain.

While this is important in order to prevent pain, and is the principal object of the varnish, it should not extend much beyond this and smear any more of the walls than is necessary; for in that case it will not only injure the firmness of the main filling, but it is unnecessary and superfluous to varnish dead dentinal rods, which have already severed their connection with the living pulp by decay.

Having deposited the varnish it is not necessary to wait for the chloroform to evaporate, as is customary, but immediately apply a thin covering of oxyphosphate of the consistency of cream, which is so plastic that it can, if applied delicately, be spread over the entire surface of the varnish without displacing it. The varnish insulates, as it were, the irritating properties of the cement from the pulp, thus preventing pain, which almost invariably would follow were it to be placed in contact with dentine over the pulp. Should, however, the varnish coating be injured, pain will generally follow in proportion to the extent of the injury of the “insulator.”

Having the pulp protected, and the varnish coat hermetically sealed in by the cement, the chloroform is retained and made useful by acting upon the exposed portion of the pulp beneath; and the morphine mixed with the wood creosote acting upon that portion of the crown of the pulp which is not exposed, the entire pulp is rendered insensible to any irritation that may take place—a condition tending to obviate any “shock,” and which will continue until nature has time to act and becomes habituated to the presence of the capping material—a point of great value to both patient and operator.

Having accomplished the important point of painlessly protecting the pulp, a proper additional amount of cement similar to that used for flooring should be introduced, after which, when it is sufficiently hardened, it may be dressed and shaped in readiness to serve as a basis for a metallic plug.

If amalgam be desired for the main filling, it may be introduced at the same sitting; but if gold is employed, it is better to defer it until a subsequent sitting, when the cement base will be sufficiently hardened to build upon. This method of capping exposed pulps is one of the simplest, speediest and most satisfactory operations in dental practice.

—*Missouri Dental Journal.*

BRUSHING THE TEETH.

DR. M. D. L. DODSON, DUBOIS, IOWA.

ED. ITEMS:—Misapprehension, to an alarming degree, exists among the masses, especially in rural communities, regarding the care of the teeth.

Many people are shocked when told that their teeth are encased in tartar so as to almost conceal their shapes, that the gums are spongy and diseased, already receding from the necks of the teeth, and that if this state of things continue they will loosen and require to be removed.

Fifty or a hundred years ago this condition was chiefly among the teeth of old people; now it is quite common in the mouths of comparatively young persons. Yet little attention is paid to the matter until driven by suffering or the very offensiveness of the case, and then the sufferer is as apt to apply to a druggist, a physician or a tooth tramp, as to one who makes diseases of the teeth a specialty. We have here a capital opportunity for a treatment that may redound to the advantage of patient and operator.

It is bad practice to "scrape" the teeth, but in a case like the foregoing, who would condemn a thorough and judicious use of the *scalers*?

But the remedy? It is hinted at in that *sharp* word "*scalers*." Off with that slimy crust! If it requires three or four sittings, remove it thoroughly, but, of course, carefully. Now we are ready to attend to the business intimated in the caption of this article, *Brushing the Teeth*.

Whether we are adherents of the germ or the acid theory, matters little in regard to this duty. The free and frequent use of the brush is just as essential in either case, because *cleanliness* is the all-important question. Some people insist that brushing is an injury. Well, in some cases it may be, just as with some soap and water we may expose skin, if we once get down to it. But the plain truth is that the teeth need to be frequently cleansed, not only to wash off food before it putrefies and harbors germs and produces destructive acid, but also, in too many instances, to remove profanity and tobacco!

Seriously, however, faces may be handsome while the mouth is the receptacle of all foulness. Nothing but the renovating effects of the tooth-brush can remove all the decay lodged there. We contend for a *good brush* and tooth-pick, used after each meal. We must give instruction in the proper tooth powder and brush, with specific instruction for each individual case. Brushing the teeth with charcoal, pumice-stone, chalk, etc., is not going to restore diseased gums. Chalk alone, or combined with suitable antiseptic and detergent ingredients, may be used, though pure water is generally sufficient.

It pays to induce everybody to use the tooth-brush, for then our patients come to us with presentable mouths, and it promotes their comfort.

If from babyhood to old age everybody, from this time forward, were to use the tooth-brush as they should, and adopt a proper regimen of phosphoric and bone-producing food, in a few generations there would be a return to a primitive condition of tooth substance, and suffering from tooth diseases nearly cease.

THE DENTIST.

The modern dentist is not like the dentist of long ago. The old time dentist did not repair teeth ; he simply uprooted those that were decayed. It is only of late years that the dentist has occupied a recognized position in the departments of minor surgery. Some dexterity and considerable muscular strength were the chief qualifications of the dentists of our childhood. When a patient called on one of them, the dentist would put his finger in the patient's mouth, and after feeling around among the stumps and shaking them one after another until a howl from the patient demonstrated that he had hold of the right one, he would say, laconically : " It's got to come out." Then he would go for his instruments. These mechanical appliances were of a very primitive character. They consisted of several pairs of things like bullet molds ; those of the largest size he used on adults, and the small ones on children. While he was engaged in filing the rust and filth off his instruments, the sufferer had time to note the contents of the room. On a shelf was a rope, with which nervous patients were tied in the operating chair : on another chair a basin, and a pitcher with a broken handle, containing water presumably for the purpose of washing away such gory evidences of butchery as the operation might leave ; on a broken legged desk, propped up with a brick, was a skull with a cracked jaw bone, which was too suggestive to be pleasant or soothing ; in the window sill the dentist's library, consisting of a copy of Wedl's Pathology of the Teeth, and a portion of a volume of Moore's melodies ; in front of the operating chair, hanging on the wall, was a steel engraving representing Napoleon on the Island of St. Helena. The picture was evidently put there with the view of distracting the patient's attention from thoughts of the agony in store for him. While he was wondering if Napoleon ever had toothache, and if he ever burned the inside of his mouth with creosote and oil of cloves in his efforts to deaden the pain ; and while he was wishing that he could change places with Napoleon for a day or two, the dentist grasped him by the hair, threw his head back, inserted the can opener in his mouth, and began groping around for the bad tooth. When he found it, his usual plan was to crush it

into pieces and dig out the fragments, one at a time. During the operation the sufferer groaned, and moaned and yearned for death. When the dentist got his grappling irons around the root of a double tooth, and braced himself up with his foot against the wall for a long pull, a strong pull and a pull all together, the patient thought that the end of all things was at hand, that an explosion had occurred in the cellar and that the heavens were rolling themselves up as a scroll, while the top of his head was being broken off, and his vertebra was being jammed down into the hollow of his legs. When he was calmed with a glass of water he found that the alarming sensations he had experienced were caused, as the dentist put it, by "the extraction of the molar from the alveolar cavity."

The modern dentist is a different kind of an aggravated outrage. He has a college diploma that he keeps hanging on the wall in a tin case. He usually has a nicely furnished operating room, where he has an elaborate chair, working on pivots and hinges, that he places the patient in when he is pulling his tooth, and another to be used when a tooth is being filled. He has hundreds of instruments—diminutive augers and gouges and scrapers, and one vile thing that seems to make about seven hundred revolutions a minute, and with which he bores into the nerve of your tooth until you feel as if your immortal soul was being tampered with. But the modern dentist seldom pulls a tooth. He prefers to fill it with some gutta percha sort of composition, or with gold. You see the filling will, in the course of time, come out, and then he gets another job putting it in again, whereas when he pulls out a tooth, that ends it; the owner of the tooth seldom cares to have it decorated, or to squander bullion on it after it is out. He usually carries it in his vest pocket for two or three days, and then throws it into some vacant lot. When a man has an aching tooth that tries to push itself into prominence, that seems to swell up and get in the way of everything he eats, and to take more of his thought and attention than he can spare, he can go to the modern dentist, who will fill him up with gas until he imagines he is a balloon soaring up almost as high as the dentist's charge for the operation, and when he comes to earth again, the tooth will be gone and there will be a vacant place in his jaw that will seem to him to be about the size of a town lot. The painless dentistry of to-day is less exciting than the painful dentistry of the past; but it is otherwise an improvement on the old style.—*Texas Siftings*.

It is not the fine *finish* of our work alone that should be aimed at, but the thoroughness of our work through and through.

PLASTER FOR IMPRESSIONS.

A writer in your May ITEMS says he thinks "plaster is the only suitable material for taking impressions." He says he "has had failures with almost every other material, but very few with plaster."

I have had *many failures*, not only with "other materials," but with plaster too. The expression that "plaster is the *only suitable* material," etc., is like the old hobby that "gold is the only fit substance with which to fill teeth." They are both on a par—as much reason in the one saying as in the other, and very little in either.

If a dental practitioner wants to *succeed*, he must not be trammelled by any "pet theory," but must *look, think and learn* what is best for the particular case he has on hand at the time. What is best for one is not always best for another. And sometimes it is requisite to use two or more articles in the taking of one impression. For instance, a case occurred the other day, wherein another dentist had taken *eleven* separate impressions, and made several under sets of teeth for an old lady, without a successful fit. The trouble was, the two bicuspid on the left side remained alone in the gums. They were very long, bell-crowned, and canted backwards so that it was impossible to remove the impression from the mouth without marring and spoiling. To overcome the difficulty, I first took a trial impression in soft wax, and withdrew it before the wax stiffened, and held it under the spigot until quite hard. Of course it "drug." I cut out a small portion around the teeth and over the gums, then filled it with *soft plaster* and inserted it again, pressing it *home*. When the plaster had set sufficiently to break with a sharp fracture, I removed it as carefully as possible. It was badly broken, but care in collecting the pieces and placing them upon the wax where they belonged, enabled me to secure a good impression, upon which I made a set of teeth satisfactory in every particular.

NED.

SAND-PAPER DISKS.

MR. EDITOR:—At the November, 1882, meeting of the N. Y. Odontological Society, Dr. C. E. Francis presented a sand-paper disk for use on the dental engine, to finish approximal fillings. I have been almost at the point of writing a description of these disks many times, but each time satisfied myself by urging Dr. W. G. Overstreet, of Greencastle, Ind., to either place the disks upon the market or the tool he invented to make them. This supplying them or the tool to the profession he has neglected until they have worked themselves "up to" the attention of the Odontological Society.

Dr. Francis recommended several coats of shellac varnish, the first being quite thin, and said it was to stiffen the paper. Now while this

stiffening of the paper is desirable sometimes, we also need a supply of the disks as flexible as they can be. Hence they must not have five or even two coats of varnish. For these flexible disks we used the shellac not to stiffen them, but to add to their durability when unavoidably dampened by the saliva.

Dr. F. Y. Clark suggested sandarach as a substitute for shellac, saying it would not dissolve in the saliva. No doubt, experience will lead to improvements in these disks, but they are as above described, one of the best additions made to engine equipments since Arthur's disks were invented.

Dr. Overstreet's tool for cutting the disks may be described as like a scribing compass, with one of the points flattened into a sharp blade. With a tool of this description disks from the size of a ten cent to a twenty-five cent coin can be cut very rapidly, perfectly round and with a hole in the center for the "parting-nut-mandrel." This mandrel is much more convenient for this disk than the parting-head mandrel or any other. Besides needing several sizes of the disks we also should have two or three different thickness of paper, and as many grades in fineness of the sand upon the paper. These are all details that will have much to do with giving one a good "first impression" in their use. They are not only valuable for finishing approximal fillings, but one will find himself using them on crown and labial fillings. They are the most efficient means yet invented to trim the filling and enamel border down together without injury to either. Any one who neglects supplying himself with them makes a mistake.

W. E. DRISCOLL.

Bedford, Ind., May 14, 1883.

BROKEN TEETH REUNITING.

After quoting from the ITEMS OF INTEREST the case of this kind reported by Dr. A. Colton, Hudson, N. Y., the editor of the *British Journal of Dental Science* adds the following in his May's issue :

"In connection with the above, we may say that one of our patients has a superior central incisor that was split, by a fall, during childhood, near the central line, from the cutting edge to a point above the margin of the gum. He tells us that he pressed the parts together as well as he could, and left it alone. Under this treatment, it did so well that now (some twenty years afterwards) he has an excellent tooth, that has given him no trouble, and requires close inspection to observe the point, or line, of fracture. In this case, also, it would seem that there must have been 'bioplaxson.'"

To Drill Glass, keep the drill-bit wet with coal oil or oil of turpentine.

TREATING PULPLESS TEETH.

In a recent discussion of this subject in the N. Y. Odontological Society, Dr. A. W. Brockway said he now had but little difficulty in successfully treating devitalized teeth. He thought the whole secret was in the thorough cleansing and disinfecting of the roots, and their subsequent thorough filling. He is cautious in using creasote or carbolic acid at the first dressing, especially if there was much putrid matter present. He relies chiefly on hot water—sometimes using alcohol. For disinfectants he uses eucalyptus oil; also a solution of permanganate of potash.

Dr. Rich favors permanganate of potash as a disinfectant for roots of teeth. He thoroughly impregnates the dentine with it. When the roots are prepared he fills them with soft wood, whittled to a sharp point and then dipped in boiling paraffin to saturate the wood, and thus make it impervious to moisture. They ought to be left projecting slightly so they can be removed when necessary. He does not like creasote in the treatment of pulpless teeth from its liability to produce irritation and inflammation, and seems to turn the gelatinous matter found in the root into one insoluble compound.

Dr. Northrop says: "To all with whom I have talked upon this subject I have said: Never use carbolic acid or creasote upon opening a tooth where the pulp is dead." After using permanganate of potash to syringe it out with, I penetrate far enough to clean the canal perfectly; I use spirit of camphor. I would say that when I open a tooth where the pulp has been dead for a long time I very seldom attempt to cleanse it perfectly at the first sitting, for, in extracting teeth of that character where they have been broken down, I have almost always found an abscess at the end of the root, or at least a thickening of the periosteum, showing that it was in an unhealthy state; and finding it in that condition I have thought that if I penetrated the root to the apex, trying to make a perfect cleansing of it before I had it under treatment at all, I was very liable to get an irritation that would end in ulceration. Almost always the dressing I put in is camphor, after using the permanganate of potash."

Dr. Brockway sums up his method thus: "I am satisfied for myself that the treatment should in the first place be cleansing, for which I use hot water; in the second place it should be disinfecting, for which I use permanganate of potash; and in the third place it should be antiseptic, for which I use carbolic acid or creasote. I hesitate to use the antiseptic treatment at the first dressing, usually for the reason named, that I fear to seal up any that is beyond the foramen.

A SUBSTITUTE FOR RED RUBBER.

H. B. KENNAN, WASHINGTON, GA.

It has been, at times, amusing to me to read the various articles condemnatory of red rubber. Hardly a magazine reaches me, but what I find that some brother has given it another whack. I feel sorry for it, and as it is a subject of so much abuse, so much harm to the dear people, and of so much discussion, and unhappiness to the profession I thought I'd make an effort to reconcile matters. I've used red rubber pretty extensively, and have never seen any evil effects when used by cleanly people. I've seen slightly redder surface of the part covered by the plate, than that portion which was not in contact with it; but I see no evil in this, especially as I've seen the same from wearing a gold plate. As a remedy, use black rubber—discard the coloring matter, but not the material. The black contains no vermilion, consequently no mercury, to poison the membrane or system. Black rubber is stronger than red, and more pliable, and, hence, with these qualities you can make your plate thinner, and equally as substantial. The item of a thinner plate is very often desired for some mouths, as we all know. Black rubber has more spring to it, and is less liable to crack; in fact, I do not remember to have ever had a whole denture to crack. True, some may say it is not a pretty color, or that it is unsightly. This can be no objection. The mouth is not used as a mirror for other people to look into. A little English flesh-colored rubber, or even our much-despised red, may be used for the rim or border above the front teeth—for those who show their gums. Black rubber is easily packed; if anything, more so than red, and can be as easily, and as well polished. I used black rubber for years, and only discarded it to be in the fashion with the rest of the brethren. Rubber has been a blessing, a godsend to the people—and, I may say, a blessing to the dentist. Many poor people (and stingy rich, also) have been made happy, and healthy too, by a set of teeth, they could afford, who never would have been able to realize this pleasure, had the precious metals remained the only material.

Cease this villifying of the bridge that has been of such universal benefit. Adopt the black rubber. Do all the good you can with it, and make all the money you can out of it.—*Southern Dental Journal*.

OUT IN PENNSYLVANIA, May, 1883.

EDITOR ITEMS:—Allow me to express my appreciation of the merits of the ITEMS OF INTEREST. The present number is full of good, commonsense articles, unadorned with “high-fa-lutin” technicalities, containing much that is valuable to the casual reader as well as the

D.D.S.

SEPARATING TEETH—A GOOD SAND PAPER CARRIER.

BY DR. H. E. DUNN, COCHRANTON, PA.

EDITOR ITEMS:—I noticed in the April number of your journal an article on separating teeth, by Dr. L. D. Shepard. He is successful with waxed tape. I never tried it, but I here give something similar that I have found to answer all requirements he mentions, and it seems to me it would be more easily applied. It is as follows:

Take a piece of common cotton twine (it can be waxed if desired, although the expansion will be greater if not,) and pass it between the teeth; tie a single overhand knot and draw it between the teeth until the desired pressure is obtained. If greater pressure is needed, tie two knots. If the teeth are very close and obstinate, start them on the same plan with floss silk, followed by the twine. There is no danger of injuring the gums, is easily understood by the patient, and is always at hand in every house. Unless teeth are very firmly set, sufficient space to fill may be obtained in twenty-four hours, without producing soreness; longer time will cause irritation.

Another little article that I find of great use is a sand paper holder for finishing rubber work. It can be used in any chuck lathe:

Take a piece of hickory $3\frac{1}{2}$ inches long, turn a tapering spindle to fit the chuck, and a cylindric-head $1\frac{1}{4}$ inches long by $\frac{3}{4}$ inch diameter. Round the outer end slightly, but do not cone it; with a very fine saw split the head and about $\frac{1}{2}$ inch of the handle; bore two 1-16 inch holes in the end, one in each half; make a staple to reach across the split and bind the two halves together when the paper is in. Now to put in the sand paper. Take OO and cut a strip $\frac{1}{2}$ inch longer than the diameter of head, and wide enough to extend over the end $\frac{3}{8}$ of an inch; this will act as a cone to finish the hollow of the plate. Place one end in the splint in the side of the head, bring the other around and mark it; break this end same as other, place the broken edges together with the free ends in the circle thus formed and slide it over the head with the ends in the slip. Put in the staple and you have a chuck that will cut rapidly and smoothly, and can be changed in an instant when worn out. When it ceases to cut reverse the motion of the lathe and it will cut again. Try it.

The display of dental instruments and general evidences of our professional occupations, does not show good taste. Instead of thrusting these things to the front they should be kept in the background. Our best customers will prefer to see nothing which will suggest to them the disagreeable work which has brought them to the office. The more like a parlor our place appears, the more quietly and unostentatiously we can do their work, the better they will be pleased.

CONFERENCE OF STATE BOARDS OF DENTAL EXAMINERS.

Pursuant to the call of the committee appointed last August, at Cincinnati, the representatives of the State Boards of Dental Examiners or Censors, met at the office of Dr. A. O. Rawls, Lexington, Kentucky, February 20, 1883, at 2 P. M.

The following States were represented :

Illinois, by Drs. Geo. H. Cushing and A. W. Harlan.

Indiana, by Dr. P. G. C. Hunt.

Kentucky, by Dr. A. O. Rawls.

New York, by Dr. Norman W. Kingsley.

Ohio, by Drs. J. Taft, H. A. Smith, F. H. Rehwinkel.

Vermont, by Dr. James Lewis, of Burlington.

The committee on drafting dental law submitted the following report, which was accepted ; the several sections of the proposed law were discussed and voted upon—for or against approval.

PROPOSED DENTAL LAW.

SECTION 1. Be it enacted by the people of the State of ———, represented in the General Assembly : that it shall be unlawful for any person who is not at the time of the passage of this act engaged in the practice of dentistry in this State to commence such practice, unless he shall have obtained a license as hereinafter provided.

SEC. 2. A board of examiners, to consist of five practicing dentists, is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this act. The members of said board shall be appointed by the Governor from ten (10) names, which shall be furnished him by the ——— State Society. Three members of this board at least, shall be members of the State society. The term for which the members of said board shall hold their offices shall be five years, *except* that the members of the board first to be appointed under this act shall hold their offices for the terms of one, two, three, four, and five years respectively, and until their successors shall be duly appointed. In case of vacancy occurring in said board, such vacancy shall be filled by the Governor, from the nominations of the State society.

SEC. 3. Said board shall choose one of its members president, and one the secretary thereof, and it shall meet at least once in each year, and as much oftener and at such times and places, as it may deem necessary. A majority of said board shall at all times constitute a quorum, and the proceedings thereof shall at all reasonable times be open to public inspection.

SEC. 4. It shall be the duty of every person who is engaged in the practice of dentistry in this State, within six months from the date of

the passage of this act, to cause his or her name and residence or place of business to be registered with said board of examiners, who shall keep a book for that purpose, and every person who shall so register with said board as a practitioner of dentistry, may continue to practice the same as such, without incurring any of the liabilities or penalties provided in this act. The board of examiners shall furnish to the county clerks a certified list of those registered, and it shall be the duty of the county clerks to register such names in a book kept for such purpose. Every person registering with the board of examiners shall pay as a fee therefor the sum of one dollar.

SEC. 5. Any and all persons who shall so desire may appear before said board at any of its regular meetings and be examined with reference to their knowledge and skill in dental surgery, and if the examination of any such person or persons shall prove satisfactory to said board, the board of examiners shall issue to such persons as they shall find from such examination to possess the requisite qualifications, a license to practice dentistry in accordance with the provisions of this act. But said board shall at all times issue a license to any regular graduate of any reputable dental college without examination, upon the payment by such graduate to the said board of a fee of one dollar. All licenses issued by said board shall be signed by the members thereof and be attested by its president and secretary; and such license shall be *prima facie* evidence of the right of the holder to practice dentistry in the State of ———

SEC. 6. Any person who shall violate any of the provisions of this act shall be liable to prosecution, before any court of competent jurisdiction, upon information or by indictment, and upon conviction may be fined not less than fifty dollars, nor more than two hundred dollars, for each and every offence. All fines recovered under this act shall be paid into the common school fund of the county in which conviction takes place.

SEC. 7. In order to provide the means for carrying out and maintaining the provisions of this act, the said board of examiners may charge each person, applying to or appearing before them for examination for license to practice dentistry, a fee of ten dollars, and out of the funds coming into possession of the board from the fees so charged, the members of said board may receive as compensation the sum of five dollars for each day actually engaged in the duties of their office, and all legitimate and necessary expenses incurred in attending the meetings of said board. Said expenses shall be paid from the fees and penalties received by the board under the provisions of this act; and no part of the salary or other expenses of the board shall ever be paid out of the State treasury. All moneys received in excess of said per diem allowance and other expenses above provided for shall be held by

the secretary of said board as a special fund for meeting the expenses of said board, he giving such bond as the board shall from time to time direct. And said board shall make an annual report of its proceedings to the Governor by the fifteenth of December of each year, together with an account of all moneys received and disbursed by them pursuant to this act.

SEC. 8. Any person who shall be licensed by said board to practice dentistry shall cause his or her license to be registered with the county clerk of any county or counties in which such persons may desire to engage in the practice of dentistry, and the county clerks of the several counties in this State shall charge for registering such license a fee of twenty-five cents for each registration. Any failure, neglect, or refusal on the part of any person holding such license to register the same with the county clerk as above directed for a period of six months shall work a forfeiture of the license, and no license, when once forfeited, shall be restored, except upon the payment to the said board of examiners of the sum of twenty-five dollars, as a penalty for such neglect, failure or refusal.

SEC. 9. Any person who shall knowingly and falsely claim or pretend to have or hold a certificate of qualification, license, diploma, or degree, granted by any society, organized under and pursuant to the provisions of this act, or who shall falsely and with intent to deceive the public, claim or pretend to be a graduate from any incorporated dental college, not being such graduate, shall be deemed guilty of a misdemeanor.

The committee on permanent organization reported as follows:

Having taken the subject into due consideration, your committee respectfully recommends that a permanent organization of the examining boards be effected, and that Dr. Cushing, secretary of this conference, be instructed to notify the different State boards, and to urge them either to attend in a body or to send representatives to a meeting to be held at the Cataract House, Niagara Falls, on Monday, August 6, 1883, at 2 o'clock, P. M. The time fixed for this meeting is the Monday preceding the annual meeting of the American Dental Association.

Dr. Cushing offered the following, which was unanimously adopted as expressive of the sentiment of the conference:

In presenting this draft of a dental law, this conference would say: That it is the result of consultations with those having had more or less experience in procuring such laws and in the working thereof. It embraces the principal features which experience has demonstrated to be essential. It is offered suggestively and not with the expectation that its phraseology will necessarily be adopted, or that it is the best, or most desirable. Of course, each State seeking to secure such a law

would do so under the direction of its own legal adviser ; but we believe the features of most importance are embodied in the draft submitted.

The committee on preparing lists of questions, being now called upon for a report, stated that there had not been time enough to complete its labor, but submitted the lists so far as they were ready. The result being every way satisfactory, it was agreed that the committee should complete its labor and furnish the secretary with the lists for printing.

BRIDGEWATER, VA., May 20, 1883.

EDITOR ITEMS:—A few days ago a healthy girl of 15 years called at my office and requested me to “extract her upper front teeth.” On examination I found the teeth very loose. My first impression was that she had been salivated ; but on questioning her, she assured me that she had “never been sick in her life, and had never taken strong medicine.” I extracted *one* deciduous canine on the right side, two central and left lateral incisors. The fangs of the right central and left lateral were entirely absorbed ; while the fang of the left central was not, though much shorter than the average. After extracting the teeth, I probed the sockets and found new teeth, (or teeth of third dentition) almost protruding through the gum. I thought this a “queer freak of nature,” and determined to send you the teeth for inspection.

Yours, &c., D. A. BUCHER.

[We think these teeth are temporary, and that, by-and-by, the doctor will find the permanent teeth making their appearance.—ED.]

EVANSVILLE, WIS., June 7, 1883.

DEAR ITEMS:—I just at this moment took up the March number of ITEMS and read the letter signed by X, who seems to regret the change of form of the ITEMS ; says he would have sooner paid a dollar for the old style. The present volume is the first I have ever subscribed for, but have occasionally received one and liked the reading matter very much, and did, at the commencement of the year, send you 50 cents for it as it was, regardless of form, but was highly pleased to send you 50 cents more and get it in the new form. Why? For the reason that I can not remember all I read, and when I read that which is of value I want it in shape that I may preserve it for future reference. And if Friend X pleases to call in my office hereafter in 5, 7, or 10 years, I hope I may be able to show him the ITEMS OF INTEREST of 1883 bound in a cover, and will have the binder leave off the cream-colored one which you wrap it in if it is so objectionable to him. But the shuck matters not to me if the meat continues rich.

Yours respectfully, L. B. BEEBE.

THE DECIDUOUS TEETH.

It seems to me the more I see of practice the stronger I feel as to the great importance of caring for the deciduous teeth. Parents are indifferent to the decay of them. When small they give pain. Papa mildly says: "Well, we'll go to the dentist and get it out; it's only a temporary tooth, and another will soon take its place." The responsibility of the parents for the proper care of these important organs is great; but how much more so is it our duty to open the eyes of these parents! We must show them the importance it is to that child's after life to retain these temporary teeth till nature herself is ready to spare them. The little one is brought into our office to have "this tooth-ache stopped," because it keeps all awake at night. They want it either stopped or "the nerve killed." This nerve-killing is a great panacea with many persons, which should be discouraged. The general public need more light. It has been advised that we go into the schools, and there teach the necessity of saving and caring for the teeth, or to use the daily and weekly press, or to circulate a little pamphlet of instructions and general information. These are all well, but we have also a duty within our own office; it is to seize every opportunity of giving practical information.

H. H. WAY, St. Thomas, Ont.

EDITOR ITEMS OF INTEREST:—I see in your ITEMS an inquiry about prescribing phosphate of lime to patients. I have been in the habit of keeping the prepared phosphate of lime, and where I have found indications of a lack of nourishment have given it. I can give scores of instances where I know there has been a marked improvement, not only in the firmness of the teeth, but in the general health. You say "give a diet where those elements are in abundance." Any who try to have their patients live on Graham bread, oatmeal, etc., find it impossible to have them continue it long enough to be of any marked benefit; but with the syrup they will continue its use, and perhaps with many it will displace some drug that is really detrimental. Now, I want to suggest that, if a dentist has not enough knowledge of disease to know when to prescribe as simple a preparation as Syr. Lac. Phos. Lime, he should commence study.

You say: "Give some diet that has been assimilated, and so become capable of being taken up in the human system." I wish to ask, what is there in Syr. L. P. L. that is not in that condition? Phos. of Calcium is made from bones, and so is even one step further in the scale of assimilation than the phosphates found in grains. O. S. U.

USING THE TEETH.

EDITOR ITEMS:—In the May number of the ITEMS Dr. Whiting, of Detroit, refers to the system of physical training practiced in the schools of the present day, and suggests "that some such exercise should be invented for the teeth." The best gymnastics for the teeth is their vigorous use. Let us educate our patients to masticate their food well—using *all the teeth*; to eat plenty of hard food and beef; thick, rare beefsteak.

Beef will benefit the teeth more than any other food, and a sharp practitioner will quickly detect the absence of the iron, lime, and other properties of beef in the teeth. Another excellent thing for the bone substance is the soft, white gristle found in lamb and veal. Masticating the gristle exercises and develops the muscles of the jaw, cleanses the teeth, and furnishes lime to the whole osseous system—which will gradually harden the teeth until they become like flint. The chewing of spruce gum is a practice which I also highly recommend. It creates a saliva, which aids digestion; cleanses the teeth by wedging itself between and around them, and the friction to the gums keeps that membrane in a hard, firm, healthy condition. If the teeth are thus exercised and well cleansed every night, with a powder without *grit*, *acia* or *alkali*, and a brush of irregular surface is used thoroughly, both transversely and longitudinally, so that you work into all the irregularities, fissures, etc.; if all this is done there will be little decay, if he has teeth of ordinarily good structure. I speak intelligently on this subject, for I have described my own case.

Yours, &c., L. C. G. WATKINS, D. D. S.

MICHIGAN'S DENTAL LAW.

This State has just passed a good law. The Governor has the appointment of a board of examiners, who hold office for three years, except the first appointment, which give one, two and three years. They meet once a year, though either member may grant a license till the next ensuing meeting, charging three dollars. A member may appoint a substitute, if unable to attend. Each receives three dollars a day for services, and ten dollars is charged for license. Any money not expended by the board goes to the State. A dentist now practicing in the State is exempt from examination, provided he reports in 90 days and pays twenty-five cents for registration by the Secretary of the board. Twenty-five dollars is the fine for infringement, with the possibility of imprisonment.

The meeting of the Southern Dental Association is changed to Tuesday, July 31st, at Atlanta, Ga.

The Georgia Society meets at the same place July 30th.

KEEPING THE TEETH CLEAN.

C. E. FRANCIS, D. D. S., M. D. S., N. Y.

It is a deplorable fact that the mass of mankind are culpably negligent in caring for their teeth.

Useful as are these organs as aids in the promotion of health, comfort and longevity, they are often sadly abused, and as a consequence, not infrequently do they prove rebellious and become a source of dire annoyance.

Many people defer visiting a dentist until driven by relentless pain to seek relief, after having vainly exhausted the various domestic remedies suggested by sympathizing friends. By that time, in all probability, the offending member and perhaps several others are found to be in an exceedingly dilapidated condition; possibly ruined. In such cases very likely all the remaining teeth have become badly stained or coated with incrustations of salivary calculus; with gums purple and humid, and ready to bleed at the slightest touch.

Some mouths, so far as the invasion of a tooth brush is concerned, are unexplored caverns of a miniature type; and others which receive but an occasional visit from this intrusive explorer, are not in a much better condition for the little care bestowed upon them.

But there are many, very many well meaning individuals who habitually brush their teeth, and some even declare that they perform this duty twice, thrice or four times daily, yet cannot keep their teeth from becoming stained, or covered with "tartar."

Who has not witnessed cases where the teeth, after having received a most thorough cleansing by a dentist, have, within a few months after, been again covered with accumulations as repulsive to the eye as if they had never been cleansed? And yet, when expressions of surprise follow such discoveries, assurance is given that the tooth brush is regularly used!

It is certainly disheartening to a dentist who, after having taxed his best efforts to save from total destruction a set of teeth nearly wrecked by abuse or neglect, to subsequently find them again stamped with stains, and their interstices loaded with extraneous matter.

On the principle that "like causes produce like results," teeth ever so skilfully treated by the dentist, if in this manner are constantly menaced by invasions from such mischievous elements of decalcification, what wonder is it if fillings occasionally become undermined with decay and prove failures?

"Why cannot I keep my teeth free from 'tartar?'" is a question frequently asked by discouraged patients. "It is not from lack of brushing," they say. To express a doubt as to *thoroughness* on their part is a delicate thing to do, yet proofs are sometimes painfully appar-

ent to warrant such a doubt. Undoubtedly many individuals imagine they are particular in this respect when they are not.

The fact is, very few persons know how to properly manipulate a brush; nor do they know what sort of a brush to select. Scarcely one in ten of the brushes manufactured are fit for use, and this statement is no exaggeration. Many are too large and unwieldy to be successfully managed, and would be more suitable for "nail brushing." The majority of them are also too compact; some too rigid and not sufficiently pliable to be useful, while others are too soft and little better than rags. The brush for service should never be broader than the medium sizes usually sold, nor over two-thirds their length. The bristles should be elastic and their ends trimmed in serrations, or "notched"—this form being best adapted to the shape of the teeth.

In use, the brush should be pressed firmly against the teeth, commencing with the back ones at their cervical borders, and with a semi-rotary motion slowly brought forward and toward their grinding edges in such a manner as to force from between them accumulations that have found lodgment there; also allowing the bristles to come in contact with all enamel surfaces possible to reach.

Rapid horizontal dashes should be avoided. Brushing furiously across the teeth touches only points of enamel that least require rubbing, leaving the accumulations that load their interstices undisturbed or unmolested.

It is not the frequency of brushing that best preserves the teeth, but the degree of thoughtfulness with which it is done. The time for performing this duty most effectively is just before retiring for the night. During the twelve hours interval from the evening meal to the morning repast, particles of food retained about the teeth and subjected to the warm, humid condition of the oral cavity, cannot fail to be decomposed or fermented, thus breeding an insidious foe that, night after night, besieges the canal walls which, unless of extraordinary compactness, will sooner or later give way to its destructive forces.

There is no objection to cleansing the teeth when making the morning toilet, yet, if thoroughly cared for the night before, they require comparatively little of such attention in the early part of the day. To brush them more frequently than this is a needless task.

"Prevention" being considered better than "cure," it would seem an important part of the dentist's duty to give such instruction to his patients as will enable them to keep their teeth in a condition of cleanliness.

How many are sufficiently particular in this respect?—*Independent Practitioner.*

Scientific.

HUMAN PHYSIOLOGY.

BY L. ASHLEY FAUGHT, D.D.S.

Formerly Lecturer on Physiology in the Philadelphia Dental College.

[Entered according to act of Congress, in the year 1882, by L. Ashley Faught, D.D.S., in the Office of the Librarian of Congress at Washington.]

(CONTINUED FROM PAGE 230.)

The product of stomach digestion is albuminose or peptones. The action of the stomach upon fats is to prepare them for digestion, by liquefying them and dissolving the vesicles. Saccharine and starchy principles undergo little change, and are, for the most part, absorbed by the mucous membranes of the stomach, with the exception of cane sugar, the digestion of which is accomplished by the intestines. Cooked or hydrated starch is not affected by the stomach.

As an approximation, the average time that food remains in the stomach after an ordinary meal is from two to four hours, though the duration of stomach digestion varies in different individuals, and is greatly dependent upon the kind and quantity of food taken, conditions of the nervous system, exercise, etc.

Nature never intended man to eat at stated hours, as a matter of course, but to regulate his meals by the demands of the system for nourishment. When, however, the manner of life is uniform, fixed hours may be adopted. The proper time for breakfast may, in accordance with this rule, vary greatly. Those who eat late suppers do not need an early breakfast, but those dining late and eating nothing afterwards, need an early breakfast. As a general rule, however, breakfast should be partaken of an hour after rising, and those who rise very early, students, etc., should support their systems by taking immediately a cup of coffee, etc. If exposure of any kind is to be incurred in the morning, breakfast should be previously partaken of, for the system is, in the early day before eating, more susceptible to the influence of cold, miasma, etc., than at any other time, for the function of absorption, cutaneous and otherwise, is in its highest state of activity in the morning.

A longer period than five hours should not elapse between breakfast and dinner, and if the mode of life is extremely active, or the period be one of growing youth or of convalescence from illness, this time may be with propriety shortened. If dinner be sufficiently early to admit of digestion being completed, and the stomach have its proper period of rest, and should the desire for food then arise, the appro-

priateness of a third or evening meal cannot be questioned, but it should be light, and taken so as to allow an hour or two before retiring.

The quantity of food should be in direct proportion to the legitimate demands of the system, and it is well to be sure that these demands are healthy and not morbid cravings. There is no time of life when it is of more importance to follow the intentions of nature in this respect than in the earliest portion of childhood. Not one mother in a thousand, perhaps, before entering upon the duties of maternity has made herself acquainted with the nature of the wants of a newly born baby, and this alone is sufficient reason for the fact that an enormous number of children die before completing their first or second year. A healthy infant seeks the breast with eagerness, but takes but a little at a time. In these first months, therefore, appetite ought to guide the mother in offering the breast. The active call of the infant is a sign that need never be mistaken, but it should be remembered that every expression of uneasiness, or every cry of a child is not an indication of appetite. Feeding to quiet it without thinking of the fitness of the time, will surely overload and oppress the stomach and bring concomitant evils. "The breast ought not to be offered to the infant; it is for him to seek it. If he is hungry, and his gestures clearly express his want and desire, his cries cease at the approach of his mother, and if he is offered the breast, he seizes it with ardor, and not with indifference, and as though he was conferring a favor."

Mothers seem to be strangely oblivious to this pre-eminently important law, to feed their babies regularly. Up to six months of age an infant should nurse once in three hours, after that, until it is weaned, once in four. A baby should have nothing during the night. Mothers, and young ones in particular, too often allow themselves to be disturbed two or three times in the night, and thus become deprived of needed rest, by pampering to what they imagine to be a necessity. If the demands of the infant be refused, in a short time it will adapt itself to the new regimen and invariably sleep all night. Milk is the only proper food for a baby. The many substances which are sold as substitutes may sometimes play an important part, but as a rule are poor and unsatisfactory materials. If milk disagrees with babies it is because they cannot digest it. Here is the secret of most of the trouble arising from bottle feeding. Instead of abandoning milk when it thus disagrees and feeding the baby on arrow-root, etc., it must be remembered that there is much more oil and butter in cow's milk than there is in the human, and dilute it with *pure* water. Begin with half and half. It is rarely necessary to have it weaker than this. If trouble cannot be overcome by proper dilution, try buttermilk once or twice a day.

There is probably nothing that exerts so much baneful influence on

stomach digestion in infants as an unregulated amount of starch given to the child. Errors on this point are frequent and have most serious consequences.

Mothers and nurses, as a rule, are possessed with the idea that it is necessary to thicken the milk of bottle-fed babies to render it more nutritious, when, in point of fact, the thinner the food the more nourishing it is, as in this condition it is more readily absorbed. In carrying out this idea they mix indiscriminately with the natural food, corn-starch, arrow-root, farina, bread-crumbs, etc., notwithstanding the fact that the typical food, milk, does not contain any starch. This is, to reflecting minds, a warning that farinaceous food is probably unsuited to young babies. When an abundance of starchy food is given, no small quantity of it must remain in the stomach indigestible and undigested, liable to cause irritation and pain.

The baby's food is taken into its mouth, subjected to no mastication, mixed with but little saliva, and passed almost immediately into its stomach. The omission of two so important acts of digestion, as are mastication and insalivation, render it evident that the process is different in the infant from what it is in the adult, and that the stomach must meet most of the additional demands made upon it. Examination reveals many peculiarities by which the stomach of the human infant differs from that of the adult. It is much narrower, deviating but little from a straight tube, and, as a consequence, less pepsine is secreted. It occupies a more vertical position, and partially for this reason, a baby vomits with great facility. It is believed that the great advantage of the liquid condition of a baby's food is that it increases the amount of pepsine, for the material for the formation of it is derived from the substances soluble in water and absorbed by the stomach at the beginning of the digestive process; moreover, the acidified pepsine acts best in the infant when largely diluted with water. The "condensed milk" of the stores is, for the same reason, difficult of digestion. It has been placed on record by good authority that "too frequent nursing renders the milk too concentrated;" "that the longer the milk remains in the breast the more watery it becomes," and "that when the milk has recently been secreted under the stimulus of suction at the nipple, it is much richer in solid constituents, especially in caseine and butter." These facts are certainly indicative that a baby nursing too often is open to a serious and special cause of indigestion, in that its food is richest at a time when its digestive powers are weakest, a natural result of excessive use.

There is a desire on the part of parents to secure, if possible, the milk of one cow for their child. It is my opinion that the average milk of all the cows of a farm is less apt to undergo frequent and unexpected changes and is, therefore, to be greatly preferred.

(TO BE CONTINUED.)

THE AIR.

BY J. F. SANBORN, D.D., D.D.S., TABOR, IOWA.

The sun, moon, planets and stars, as they revolve in their spheres, may well illustrate the atoms and molecules of matter as they revolve in their vortices in the luminiferous (ethers that universally pervade all space) as in a vast ocean. The diameters of the heavenly bodies are vastly less than the distance from any one to its nearest neighbor. As for example, the earth is some 8,000 miles in diameter; the moon is the nearest heavenly body to it, and revolves around it at a distance of 240,000 miles. The other bodies in planetary space undoubtedly are relatively equally remote from each other.

The molecules of oxygen and nitrogen as they constitute air, are like the heavenly bodies floating in this vast ocean of ether, with space between each many times greater than their respective diameters; so that there is ample space between them for other gases to become diffused without colliding with them. The attractive and heating force of the sun vaporizes water. This causes it to rise in the air, and its fine molecules, too minute to be seen, have ample space to float at will without infringing the molecules of the air. The molecules of the O. N., C. O₂., aqueous vapors, or any or all other classes of matter in a gaseous form, have ample room to revolve in the ether as do fish in the ocean.

The air then is not like the ocean, but the vast body is the ether in which the molecules of the gases float; with the distance from one to another many times the diameter of any molecule. Now this vast ocean of luminiferous ether extends through space however remote, even to the uttermost bounds of creation; such, at least, is the opinion of our most learned scientists. This ether is the most elastic, the least resisting and the finest divided of any class of matter; in fact, its high attenuation is so great that the finest instruments known are unable to reveal it.

Its existence has never been demonstrated, but the philosophy of natural phenomena is best explained by supposing the existence of such a medium.

The manifestations of force, as light, heat, electricity, etc., are impressed on our consciousness, primarily through the medium of this ether, which occasions a vibration in the molecules of matter, which on being transmitted to our nervous system, arouses consciousness in our nerves of special sense, and we are thereby enabled to realize what phenomenon has transpired. All matter, however closely impacted the molecules, is so porous as to permit the ether to pass as rapidly as steam will through a sieve. A certain kind of motion in the ether and a certain velocity of that motion will give light, a different and less velocity will give heat, and in still another form of motion, and we have electricity. So to understand the primary principles of force in its relationship with

matter, it becomes necessary to study well the medium through which such forces become cognizable to our senses.

THE PRESERVATION OF PLANT AND ANIMAL LIFE IN WINTER.

BY PRESIDENT CHADBOURNE.

In the most cheerless winter day, there is, to one who knows the secrets of nature, promise of abundance of life in the garnered stores of the forest trees and in the humble grass and flower roots in the frozen soil,—a store of nutriment often unsuspected, but revealed in all its wealth in the sudden expanding of leaves and the abundance of flowers that covers the banks and vales in early spring. The beautiful plants of the springtime could not give us such early and vigorous growth were it not for their accumulated stores of food; in fact, without those stores prudently laid up the year before, the trees could not put forth their leaves and blossoms at all. But in the animal kingdom there are three remarkable provisions for the preservation of those whose supplies of food are likely to fail. The first is the instinct to store food, as best seen among insects in the honey-bee, among birds in the noisy jay, and among our mammals in the striped squirrel or chipmunk. The bee-keeper knows his bees must have so many pounds of honey to be able to winter without his help, and the blue-jay, apparently the most reckless bird that flies, stuffs acorns and corn into every crack and cranny he can find, as though he intended not only to have enough for himself, but expected to be robbed of his scattered hoard, as he himself has lived by robbery or worse. But the little chipmunk is a model provider. Acorns, beech nuts, corn, or pumpkin seeds—anything that will feed a squirrel in winter—are equally welcome to him. And when he is on his way to his hole, if ever a fellow had “cheek” he has! How he gets such loads into one small mouth is a marvel that no one would credit who had not seen him at his harvest work. But such a bright, cheerful, social fellow is certainly welcome to his home in the old stonewall or stump, and welcome also to the few grains of corn and wheat he may chance to glean from our fields. His cousin, the little brown striped squirrel of the Rocky Mountains, is not so harmless a neighbor, as many a miner would testify who has lost his rice and bread by the plundering of these adroit little thiefers. At one camp as they caught them, instead of killing them, they cut off their ears and tails, and set them free as a warning to others of their tribe. It did not seem to have the desired effect even upon the culprits themselves. They cut a most comical figure, as they could be seen among the camps for months, bearing the marks of their punishment, but not cured of their old tricks.

The second of nature's methods of preserving animal life is by hibernation. The lower animals, as insects and some reptiles, become to

all appearance entirely dormant, live without essential change during the cold of winter, and wake to active life only when food is again ready for them. Others, like the woodchuck, after growing fat on the abundant food of autumn, roll themselves up in nests and sleep. Vital action is lowered, they consume but little oxygen, and live upon the stores of fat with which they went into winter quarters. The black bear generally hibernates in caves and under old tree-tops, but he is never so sleepy that he is not ready for a battle if disturbed; and farther south he does not hibernate at all. In New England he grows fat on green corn, roots, and nuts in the fall, and so has had the credit of growing fat by "sucking his paws." This old notion is only another illustration of theories in mechanics and life that something can come from nothing. The truth about the bear is that he grows thin every day he lies in his den.

The third general method of preserving the species through winter is by migration, as best seen among birds, but practised also by some of the higher mammals. As the autumn advances many of the smaller birds from our midst and from the far North quietly make their way south to find warm weather and new stores of food for the winter months. Others assemble in flocks and seem to have grave consultations over the projected journey. The metallic notes of the wild goose come to us from among the clouds as night and day the flocks wend their way in long lines to the South. Long before they appear with us, they collect their broods in the lakes and bays near their breeding places, and seem to be organizing for the long flight which most of them are to take for the first time to a land that most of them have never seen; for of every flock that starts from those northern resting places, the larger part are young and have never flown but a few miles before they commence their long flight to an unknown land. They follow their leader, it is said. When did the first leaders learn the way? We have seen them in the bays of Newfoundland, gathering like a great army, practising for days; and then one flock after another separates itself from the great host and follows its chosen leader to the South. They return in spring, even while snow and ice abound, to be ready for the opening of the short northern summer. In the long days of the North and by the unmolested lakes and bays of Newfoundland and Labrador, they find the best conditions for rearing their young.

Thus it is that the grass and flowers and trees are provided for and preserved by the physiological laws of their own growth, and the animal kingdom has the added power of instinct supplementing the physiological function of organs; structure, function, and instinct all working together in effective concert prepare the endangered species for the wintry frost and storms; and for the work of another spring when the round of life is once more to begin. The old story ever new,—newer and better as we learn more of it at every repetition.

Miscellaneous Editorial.

THE CEMENTUM OF THE TOOTH.

The cementum of a tooth gives the appearance of being merely a clear, unorganized cement flowed on to the surface of the tooth. If we observe it in the process of its formation, we find it a closely adherent, vascular membrane, constituting the first follicle, or bag-like envelope of the embryo tooth; gradually, as the tooth matures, this covering loses its vascularity, and finally its membranous character, till we have the beautiful, transparent, hard, strong and enduring alveolo-dental periosteum. Perhaps, instead of describing it as losing its membranous character, it would be better to say the interstices of this membrane are so perfectly filled with a clear, osseous deposit that its cellular structure is lost to the eye.

This cementum is at first the covering of the whole pulp of the tooth, and it remains as its envelope during the entire period of its formation and solidification. Is it lost as the tooth comes to maturity? If it continues upon the crown of the tooth, it cannot be identified as a distinct structure. There is something there, however, quite as analogous, which, by subjection to practical chemical disintegration is found to closely resemble this cement. Many intelligent investigators believe it to be a continuation of this osseous membrane which we find on the roots. We say, a continuation of it; and yet if it is there at all—as is quite probable from the glossy, transparent appearance and the great hardness the surface that live enamel presents—it must be there first, and its continuation must be from the body toward the root; for we find this membrane enclosing the body of the tooth before it has a root, and when the crown appears through the gum it alone is complete, the root being only partially calcified. As the latter is gradually extended and transformed into matured dentine, this coating extends upon its surface, which is at first a comparatively soft, loose tissue, but gradually becomes a cement of remarkable hardness, growing thicker as it approaches the apex, where it constitutes a considerable part of its substance.

SOME CURIOUS THINGS IN CHEMISTRY.

THE BURNING OF A CANDLE.

The burning of a candle is a very common occurrence, yet there are some curious circumstances connected with it. Did you ever ask yourself the question,—“What becomes of the candle?” It used to be thought it was destroyed; but there is nothing lost. Sir Walter

Raleigh once astonished Queen Elizabeth by saying he could weigh the smoke coming from his tobacco pipe. In response to her incredulity he first weighed the tobacco put in his pipe, and then the ashes, after the tobacco had been burnt. The remainder he maintained was the weight of the smoke. This curious analysis of the burnt weed was such an advance over what was generally known that Raleigh was considered a wise man. But even he would have been astonished had he been shown that the result of the burning was greater in weight than the tobacco. In the case of the candle, let us see what we shall have as the result of its burning. (I prefer a candle to tobacco, even for handling.) Suppose we put an ordinary size candle, lighted, in an inverted tumbler. It has gone out? What is the matter? The small part of the candle burnt has turned to carbolic acid gas and water. The water has collected on the inside of the tumbler, but the gas has so completely filled it that oxygen has been so far excluded as to cause the light to go out. If we hold the candle a little lower, so that the carbonic acid could pour out of the tumbler like so much water, without drowning out the flame, and continue to hold it there till it was consumed, we should have a good wine-glass of water as the result.

Suppose we now make our experiment a little more complete, so as to retain all the material resulting from the burning candle. This will show us the exact weight of what we have. To do this Prof. Roseve suggests the following: A glass tube is procured with a cork at the bottom, through which some holes are bored. In the upper part of the tube are placed pieces of caustic potash to absorb the fumes of the burning candle. Now weigh the candle and tube with its contents. Connect the glass tube by a rubber tube to the mouth of a can having a faucet and filled with water. Now turn the faucet so that the water will run slowly into the pail; light the candle and thrust it through one of the holes in the cork, and let it burn. The other holes in the cork will serve for the air to pass through as the wasting water makes a vacuum in the can, thus causing a draft to keep the candle burning. After a good portion of the candle has been burnt, take off the rubber tube from the glass tube and put the latter, with its contents, and the remainder of the candle, again on the scale. You will find they will weigh more than when you began; for you have not only retained the weight of the candle in the form of gases and water, but by the burning you have separated oxygen from the hydrogen of the air, and added its weight to the resulting substances.

The Molecular Theory is based on the hypothesis that equal volumes of all substances, when in a gaseous form and under like conditions, contain the same number of molecules. This, to chemistry, is what the law of gravitation is to astronomy.

THE IMPORTANCE OF PURE AIR.

An abundance of pure air is one of the greatest safeguards against disease, and one of the best restoratives in sickness. Impure air is a disease breeder, and its presence often defies the powers of the best medicaments. Even if the atmosphere is not impure, as we define impurity, it may be so deficient in oxygen as to poorly support life, or but imperfectly impart that vigor which clear-thinking, clean morals and keen susceptibilities require. "More air! more air! give us more air!" shouted a celebrated preacher to the sexton once, as he saw his audience going to sleep. Frequently we reprove ourselves for being dull or drowsy, when the sole cause is in the vitiated air we were breathing. After we have been long in a room we do not realize the condition of its air as do those coming in from a purer atmosphere, and are surprised to hear them complain of it. At such times, if we will let in a free flow of pure, rich air—even if we have also to admit an uncomfortable amount of coldness—we shall soon see in our revival an evidence of its previous vitiation. Bad temper, bad digestion and bad work is often the result of bad atmosphere.

How often we complain of a windy day, when that wind is sent for the very purpose of replacing vitiated air with that which is pure and rich from the upper regions. In fact, the very agitation of air purifies it, by forcing back to their original elements, the impurities floating all about us. Thus, the mighty gale we so much dread presses, in its purifying mission, into sick rooms and down into all the disease-breeding cellars, and all over the low lands till everywhere decay and death give place to life, and health and cheer.

We also require an abundance of pure, oxygenized air within us. When we "don't care whether we breathe or not," so sluggish are our breathings, it is then we should take warning that disease is near, and, instead of lying down and smothering ourselves in blankets, we should go out and drink in copious draughts of pure air—open our lungs wide, by long and strong breaths, that it may penetrate every part of them, and again and again charge and recharge them till the blood from every organ and tissue is purified and vitalized.

Often, too, we live in pure air without receiving its benefits, because our skin is impervious to it. Bathing would not help us if we were besmeared with a coating impenetrable to the water. The skin is composed of thousands of mouths calculated to breathe out impurities and take in the invigorating oxygen of the atmosphere. But if these are filled full of glutinous, filthy, effete matter, how can we breathe through them?

Accompanying the blood in all parts of the system is this air charged with the duty of supplying oxygen and of taking up worn-out gases.

But how can this be, if pure air is not supplied? It must not only be present, but must be sent through every artery and into every vein with a force that only vigorous exercise can bring about. We all like calm weather, but boisterous storms are sometimes necessary. And so with the weather within us; at times we need the tempest to stir us up in every part, and bring the freshness and growth that follows the hurricane.

PLASTER OF PARIS.

Plaster of Paris—as gypsum is called from being found in great purity and quantity near Paris, in which city it was first used as a plaster—is 79 per cent sulphate of lime, with 21 per cent of water of crystallization. This is ground and then “roasted,” as its calcification is called. It would seem that *boiling* would be a better term; for, as it is subjected to extreme heat in great caldrons, and continually stirred, the ebullition caused by the escape of the water, reduced to steam, resembles exactly the process of boiling. This is continued till it has lost a considerable part of its water. It is then said to be calcined. Its “setting” qualities, as well as its strength and its tendencies to expand or contract, depends largely on the degree of its calcification; high calcification (unless it is burnt) giving the strongest plaster, but one more liable to expand and warp. The manner of its manipulation also has much to do with these results. Coarse plaster does not set as quickly as fine, but is usually stronger, and that recently calcined sets quicker than old plaster. Plaster mixed stiffly in very cold water makes the strongest casts; that mixed thin in warm or hot water expands less, if, indeed, it does not slightly shrink, but is not strong. A little salt added will cause it to set quicker without expansion, but causes it, after a little age, to become rotten. Considerable salt and water added to the plaster for packing cases for vulcanizing, will cause the plaster to come out of the flasks very readily; “it cuts like meal.” Thorough mixing renders the plaster less liable to expand or warp. It should be stirred constantly and thoroughly till it begins to set, and then placed in position quickly.

There seems to be no end to the uses which may be made of paper. Not alone is it made to do duty as pails, tubs, table-ware and floor mattings, car wheels and railroad ties, houses and observatory domes, but now we hear of a steamboat which has been nearly completed made almost entirely of paper. It is twenty feet long and has a carrying capacity of several tons. The sheathing is a solid body of paper three-eighths of an inch in thickness. It will be used on the Ohio River.

UTILIZE YOUR SPRINGS.

Many dentists and others living in country towns have near them a pure, sweet spring of living water, bubbling out from the hillside, which could be easily and cheaply brought to the house and office, and made to contribute to their necessities and pleasure. The rudest and cheapest earthen pipes or tiling (that is sufficiently durable) will do, if you can keep out the weeds, roots and surface dirt and water. This you can do by enveloping your tiles in cement. A very cheap and effectual covering is common coal tar, made into a mortar with saw dust. Nothing will grow in this, and the roots of shrubs and even of trees will "instinctively" avoid it. Still, iron pipes are not very expensive, though they are improved by being coated with tin or zinc.

When once brought to the house, office, and lawn, the water will well repay the expense in ways too numerous to mention. We can almost see the smiles of the wife as she sees its conveniences, and hears the children splashing it in the bath room, while in the office it is a never failing purifier for the spittoon, power for the engine, and pleasure for patients as they see it playing antics in the little fountain. Its utilization in the garden and the lawn is no small item, while we have in the artificial pond a variety of wholesome fish, the children and even papa like to angle.

One of the secrets of success in curing pulps of teeth, only covered by laminations of soft dentine, is to change this dentine to a covering of a leathery hardness, impenetrable to air and fluid. This can generally be accomplished by an application of two parts of creasote and one part of oil of cloves made into a paste by adding tannin. Cover for a day or two with cotton moistened with sandarach varnish, after which cover with oxy-phosphate. Sometimes it is only necessary to moisten this soft dentine with the mixture of creasote and cloves for a few minutes, then cover with the oxy-phosphate. After filling with this, a little can be cut back and the surface plated with gold and platinum alloy or gold.

Nickel Ore, of a very fine quality, has recently been found in Oregon. This metal has become so important in the arts, and as an alloy in the baser coins that any new discovery of the ore is looked upon with interest. Nickel plating is becoming so universal that very great quantities are used in this way. Our five cent coin is 12 per cent nickel and 88 copper. In the new it is 25 of nickel and 75 copper. There is probably \$15,000,000 in circulation.

If you would have your office keep you, you must keep your office.

OUR DESTINY IS IN OUR OWN HANDS.

Boys ! Do you know you are now determining your future destiny ? Every act, and word, and thought, is forming your character ; every day is showing to your friends—though you may not see it—what you will be in the future ; and every year—yes, and every month, and week, and day, is confirming your character. A little untruthfulness to-day, becomes a little more decided prevarication to-morrow ; and thus gradually you will become a confirmed liar, and you will scarcely realize the change. A little disposition to shirk work now, becomes, by-and-by, confirmed laziness. A little cigarette of the mildest quality and flavor, smoked “only for fun,” next year becomes a full fledged cigar, and, in after years, a filthy pipe. That lemonade “with a stick in it,” and that “mild beer that’s too mild to fear,” calls for something stronger. These drinks will seem insipid when the appetite has grown a little ; and, though you may loathe the life and the doom of the drunkard as much as any of us, you are on the road to his grave.

Young man ! You say you are only sowing your wild oats. “Be not deceived ; whatsoever a man soweth, that shall he also reap.” It may seem fun now ; the reaping will be terrible. To-day you may call it giddiness, thoughtlessness, jesting and foolishness ; but when these come to maturity, there will be a harvest that shall make you sad ; and though you may think to burn that crop of weeds and thistles and thorns, it will be harder work than the sowing, and at best you will have scars and wounds and poisons to remind you of your folly.

Let us all be thankful that all of us have our destiny in our own hands, and that to make that destiny we have not to wait for an indefinite future. What we are now we are quite likely to continue to be. If there is no struggle against evil, evil will take possession of us and finally destroy us. To acquire a character of intelligence, industry, virtue and loveliness, there must be an effort. We cannot be an indifferent spectator of our destiny. Youth once squandered will never return. Manhood wasted is wasted forever. Vitality destroyed by dissipation cannot be fully restored, though that despair may not seize upon us utterly, there is some hope even for the worst.

Repentance will bring strength, reform, goodness ; and thorough goodness, stability, usefulness and joy, but this is not like holding steadily on to integrity and growing up into stability and honor, and eternal glory. Let us remember that in our own hands is our present and eternal destiny.

The Discoloring of the Skin after a blow, may be prevented by immediately applying starch moistened with water—it prevents the action of the air upon the skin.

"YOU ARE A DIRTY FELLOW, SIR!"

How frequently vulgar boys make the above their only reply to anything not defensible. Last month "Kansan," in the *ITEMS*, criticised a writer in the May *Dental Practitioner* for stating, among other things: "Ladies of wealth and refinement will not, infrequently, ask us to give an appointment to their maid or nurse, explaining that they would not ask such a favor except for the fact that she has been in their employ for some time, and is altogether nice in person, and that their interest is such that they are willing to settle the bill at our usual fees. In all such cases we will find that our own interests are best served, in the long run, by declining to operate. It need not be done brusquely, for in a pleasant way we can say to them, that it would give us great pleasure to do as they request, but for a rule made long ago not to operate for such; and that, having never broken it, we would not like to do so now."

Of course, "Kansan" was pretty sharp on such nonsense, and the editor of the *Practitioner* dared not attempt a defence, and does not see fit to allow his worthy correspondent to defend himself. The only thing left for him to do is to pick up a handful of mud and throw it at us and "Kansan," with the following elegant language: "We will not be guilty of soiling its pages (the pages of the *Practitioner*) with anything so devoid of decency as this man from Kansas writes, and, at present, we know of no journal except the *ITEMS OF INTEREST* that would." Well, that is too bad. And yet we have received more letters commendatory of "Kansan's" article than any other which has appeared in the *ITEMS* for many months. Let us give a sample of several:

ED. *ITEMS*:—The article in last *ITEMS* from an unknown correspondent in Kansas, in answer to Dr. — in *Dental Practitioner*,—"Business Qualifications of Professional Men"—so expressed my views that I was sorry the author did not subscribe himself. He certainly need not fear to be known, for I think any dentist that would advocate such silly nonsense should be "tabooed" by every enlightened man of the land. He is what I should call a "Dude of a Dentist."

Respectfully, J. S. CHARLES, Omaha, Neb.

No; the author of that article is not a "dude;" he is one of the most successful, intelligent and popular dentists in Philadelphia. We all make mistakes. We think the utterance complained of was one of his mistakes. But in his general character, he is a strong man and highly respected.

Punctuality is an essential rule of success.

Not even skill will take the place of good manners.

Miscellaneous.

"SOME THINGS CURIOUS ABOUT MATTER."

MR. EDITOR:—It is with much pleasure and interest that I read the published articles in *ITEMS*, but you will excuse me if I offer a little criticism of the article bearing the above title—see page 236. I note:

1st. "The smallest particle we can see is a molecule." A molecule has never been isolated from the mass, and, of course, cannot be recognized as such by sight.

2nd. "An atom is the smallest division of an ultimate principle." An atom is the smallest portion of matter which can exist in a state of combination.

3rd. "The minutest particle of water was once supposed to be an atom of a simple substance." When? Water is expressed by the symbol, H_2O —three atoms chemically united, notwithstanding the writer says: "they now prove to exist together only mechanically." How proved?

4th. "Steam is composed of globules of gas." What kind? If of O and H mechanically united, and these "break up" into minute particles of water, then it is to be inferred that the particles of water are smaller than the atoms of either element! Misty, indeed.

W. S. ELLIOTT, M.D., D.D.S.,

Goshen, N. Y.

We cannot extensively discuss scientific statements. But where there is a difference of opinion on interesting points like the above, we are free to have both sides presented.—ED.

PRICES FOR WORK.

Enclosed find subscription for your valuable journal. I would not do without it for many times its price. I admire its tone and your boldness in advocating the principles of independence. You are on the right track, and will win in the end.

I have a profound respect for the dental profession, and far be it that I should take a position that would lower it in the least.

While I do not advocate charging exorbitant prices for professional services, I do have an inexpressible contempt for the dentist who brings odium on the profession by cutting down prices.

A fair compensation for work should be received; and this rule is applicable to the manufacture of dental materials.

Yours respectfully, E. D. ALLISON.

Marshall, Minn., May 22, 1883.

ANTI-CIGARETTE LAWS.

There is no diversity of opinion among persons of mature years as to the deleterious effects of the tobacco habit upon the young. Elderly gentlemen often maintain that to those who have reached or passed the most vigorous period of life the weed is more than a luxury—resting the weary, tranquilizing irritated nerves, promoting the digestive processes and arresting the undue waste of vital force. But these same persons are convinced that the fumes and juices which soothe and sustain the adult will stupefy the growing boy, blunt all his faculties, unstring his nerves, debilitate his muscles, set his heart a-flutter, disorganize his digestive functions, and demoralize his entire mental and physical economy. It is only fair to say that the boy holds a totally different theory. He is quite positive that the surreptitious or defiant cigarette makes a man of him at once. His conversation grows larger and louder, and he considers himself a more important member of society as soon as he can smoke without creating a revolt in his stomach. He doesn't know much about his heart or liver, but so far as he is aware those organs behave with propriety. At all events he cannot understand why saturation with nicotine should be beneficial to the "old man" and fatal to him.

The late legislature of New Jersey not being composed of boys, took the adult view of the question. Their belief was so energetic that it found expression in an act entitled "An act prohibiting the sale of cigarettes or tobacco in any of its forms to minors." The act has been approved by Governor Ludlow, and now every person who sells the narcotic in any form to a boy or girl under sixteen years of age is liable to a penalty of twenty dollars for each and every offence. The New Jersey theory, as legally formulated, now is that infants have no natural right to either rum or tobacco until they reach the age of sixteen. At this period of life the right to consume snuff and navy-plug is recognized, while the young man does not reach the full height of his privilege as a legal absorber of apple-jack until the age of twenty-one is attained. The young savages were more sternly dealt with by the aboriginal smokers on this continent. No Indian ever knew the luxury of the manly pipe until he had come to the ripe age of twenty-five, and it is to be hoped that the New Jersey legislature at its next session will amend the law so as to forbid the selling of tobacco to any minor.

It remains to be seen whether there is enough stern virtue behind this law to ensure its enforcement. But in any event the statute stands as an evidence that the representatives of the people of New Jersey consider cigarette smoking by the young an evil of serious magnitude. It will invite public attention to what all competent physicians pronounce

a pernicious practice—and to what appears to be a growing danger to the health and stamina of the next generation. Some cautious observers hold that the quality of American manhood in the years to come is involved to a considerable extent in the treatment of this problem. If the Anti-Cigarette act accomplishes anything toward the rescue of the coming Jerseyman from the temptation to narcotism, it will be worth more than all the rest of the session's legislation.

EXTEMPORE SPEECH; HOW TO ACQUIRE AND PRACTICE IT.

BY REV. WM. PITTENGER, INSTRUCTOR IN THE NATIONAL SCHOOL OF ELOCUTION AND ORATORY, PHILADELPHIA.

This is one of the most practical treatises on this subject we have ever perused. Some years ago the same gentleman gave us a fine work on *Pulpit Oratory*, which was well received. Extempore speech, however, has a larger scope and will undoubtedly receive a still greater demand. Public speaking is so essential to public usefulness that the secrets of its power should be familiar to all of us. The book before us lets us so pleasantly and familiarly into these secrets, that no one who expects to be of influence with his fellows should be without it. Address, Rev. Wm. Pittenger, Bordentown, N. J.

Statement from Dr. Leech.—It is not true that I have been sued for alleged negligence or lack of skill in extracting a tooth as mentioned in "JUNE ITEMS." There was no one more surprised to hear that there had been a trouble than I was, when I was informed for the first time, in the middle of January last, nearly four months after the operation had been performed, (the operation was performed in September instead of December, as stated, with no difficulties attending it) that the patient had a day or two before coughed up a root of a tooth. I deny that any root went down her throat while she was in my hands. Instead of being sued, I have only received a letter from an attorney saying the case had been placed in his hands, with instructions that for a *reasonable consideration* they were willing to have an *amicable settlement*. Of course, I made no reply, and they have made no attempt to get the reasonable consideration.

Truly yours, H. K. LEECH.

A rich, miserly Jew in London, went to a dentist to have an aching tooth extracted. He enquired how much it would cost. The dentist said 6 pence, (12 cents) but if he would have two extracted he would charge him only 9 pence. He had two extracted; one a perfectly sound tooth, thereby discounting toothache and saving 3 pence.

MEETING OF DENTAL SOCIETIES.

The Pennsylvania State Dental Society will convene at Cresson Springs, on the main line of the P. R. R., July 31st, at 10 A. M., and continue in session four days. For all information, address

W. H. FUNDENBERG,

Cor. Sec., 330 Penn Ave., Pittsburg, Pa.

ED. ITEMS:—The American Dental Convention will hold its next annual meeting at Saratoga Springs on the second Tuesday in August, 1883. A large attendance is expected, and quite a number of interesting papers are promised.

A. C. RICH, Sec'y, Saratoga Springs.

Pennsylvania Association, Tuesday, July 31.

The 13th annual session of the N. J. State Dental Society will be held this year at the Coleman House, Asbury Park, N. J., commencing at 10 o'clock Wednesday morning, July 18th, and continuing in session three days. The board of examiners for the examination of candidates for license to practice will meet at 10 A. M. July 17th. Candidates will report to the secretary, room 99. An exceedingly interesting number of papers will be read, and a number of clinics given by Dr. C. W. F. Bodecker. Stereoptican exhibition, anatomy and pathology of tooth structure. Dr. W. F. Buttner, the Buttner Crown. Dr. C. A. Tymmie, Hydraulic Compressor, swaying a metal plate in 5 minutes, and the Berlin continuous gum furnace. Dr. E. Slegel, a new crown. Dr. Gardinere, a new cast metal base. Dealers, inventors and patentees are invited to send anything new and useful for exhibition. The Coleman House is within fifty feet of the surf. Large, commodious, and fine table. The sessions will be held in the ball room, capable of holding 500, and very cool. Hotel rates reduced from \$4.00 to \$2.50 per day to dentists in attendance. Time from New York and Philadelphia, two hours. The profession generally are most cordially invited to attend.

CHAS. A. MEEKER, Secretary, Newark.

A Standard of Measurement has always proved a difficult problem. Anciently different portions of the body were used, but, of course, these varied in different individuals; though perhaps not so greatly as the weights of John Jacob Astor in buying furs of the Indians. When his iron weights were not sufficient he put his hand on the scales as weighing three pounds; if this did not raise the furs he laid his arm on as weighing three times as much as his hand; if more weight was needed, he took his arm off and put on his foot, assuring them he knew the exact weight of his different members. In primitive days the "finger," or digit, the "hand-breadth," the "foot," the "ell,"

(from ulna, bone of the forearm) the "pace," (the usual distance of a step) etc., all gave much inaccuracy of measurements. In 1120 Henry I, of England, thought to make measurements of length more definite by ordering his arm to be taken as the standard of unit; and Louis XIV, of France, took his own foot as such a unit. But neither Henry's arm nor Louis' foot answered a very good purpose. Henry passed away, and though a stick had been preserved to show the length of his arm, it became broken, and disputes arose as to its length. A commissioner appointed to examine it in 1742 reported: "A kitchen poker filed at both ends would make as good a standard. It has been broken, and then repaired so clumsily that the joint is nearly as loose as a pair of tongs." Yet the "yard stick," as it has ever since been called, has been continued as a unit of length both by England and America.

France became so disgusted with Louis' foot that she adopted what is known as the metric system, which was taking a meridian of the earth's surface as a grand unit. She now finds that her great men have made a mistake in their reckoning, and though it is slight, it is enough to show that we have not yet "a unit of Nature" as our standard of measurement.

HOW TO LACQUER BRASS.

A correspondent of the *Scientific American* communicates the following practical directions:

1. Be sure there is no oil or grease on the brass: do *not* touch the work with the fingers, hold it with spring tongs or a taper stick in some of the holes.
2. *Always* handle with a piece of clean cloth.
3. Heat the work so hot that the brush will smoke when applied, but avoid overheating, as it burns the lacquer.
4. It is well to fasten a small wire across the lacquer cup, from side to side, to scrape any superfluous lacquer. The brush should have the ends of the hairs all exactly even. If not so, trim the ends with sharp scissors.
5. Scrape the brush as dry as possible on the wire, making a flat, smooth point at the same time.
6. Use the very tip of the brush to lacquer with, and carry a steady hand.
7. Put on at least two coats. It is well (to make a very durable coat) to "blaze off" after each coat, with a spirit lamp or Bunsen burner, taking care not to overheat and burn the lacquer.
8. If the lacquer is too thick, it will look gummy on the work. If too thin, it will show prismatic colors. In the first case, add a little alcohol; in the latter, set the cup on the stove and evaporate some.
9. A good deal of cheap work, like lamp burners, is "dipped." Use a bath of nitric and sulphuric acids, equal parts, dip work, hung on wire, into acid for a moment, remove, rinse in cold water thoroughly, dip in hot water, remove, put in alcohol, rinse around, then dip momentarily in lacquer, shaking vigorously on removing to throw off extra lacquer and lay on a warm metal plate till dry, let cool, and it is done.
10. Avoid handling lacquered work until *cold*.

PHONETICS.

H ʥ A a ʌ ʌ ɛ ə I i E e ʌ ʌ ɔ ɔ O o U u ʁ ɹ R r
 arm and air eel ill ell all old on up. re er
 ʃ ʃ W w V v I i Q q X x M m C c L l T t ʃ ʃ ʃ ʃ ʃ ʃ.
 to too ale ile oil owl use chu the thin she vision sing.

Kontrast ɛ ɔld wi ɛ N m Speliʃ.

Tɛk ɛ folbiʃ, (spelt in ɛ ɔld wɛ in prɛnʃɛsɪs:) Kə (key, quay);
 bɔz (bows, beaux); bɔz (bows, boughs); dɔ (do, doe, dough); ɹɪt
 (rite, write, wright, right); wɛ (way, weigh); ɹɪ (wry, rye); ɪl (isle,
 aisle); ɛ (eh, aye, eigh); ɛt (ate, eight); dɛn; (dane, deign); ʌt
 (aught, ought); slʊf and slɔ (slough); θru (through, threw); rɛd
 and rɛd (read); ɪsɪs, ɪsɪs and tɛsɪs, tɪsɪs (phthisis.); mɹ (myrrh.)

ɹɛz ɹr ɔnli a f m samplz. Mɛk a list fɹ mɹself, and sɛ h x muc mɔr
 brɛf and dɛfɪnɪt ɛ fɔnɛtɪk mɔnr ɔv speliʃ iz ɹan ɛ ɔld wɛ.

Xr fɔnɛtɪk skɹɪpt lɛtrz ɹr ʌlso əzɪli rɛd and kwɪt az əzɪli ɹɪtn, but ɔv
 kɔr not mɛd ɹɪk ɹɛz. Prhɛps it iz not wɛl tɪ kɹl atɛnʃun tɪ ɹɛz fɹ ɛ
 prɛzɛnt. Lɛt us dɛsɪd frst ɪf xr fɔnɛtɪk ɔrɹktrz fɹ prɪnt ɹr dɛzɹɛbl.

Lɛt us hɛr frɔm ɹɔz hu hav gɪvn ɹɪs subjɛkt ɹɹt, and əvn frɔm ɹɔz tɪ
 huɹm it iz n m. Wɛ ɹr ɔwɹ ɹr ɹr ɔnli a f m hu hav studeɪt it muc.
 Wɛ ɹr sɹɹɪ fɹ it, fɹ it iz ɹn ɪmpɹtɛnt subjɛkt. Sɹpɔz wɛ du bɛləv
 fɔnɛtɪks kɹnnɔt bɛ mɛd pɔpɹlɹ bɪ ɛnɪ ɹɪg wɛ kɹn du; ɪf it iz dɛzɹɛbl,
 ɛ lɪtl wɛ kɹn du wɪl hav ɪts gɹɹd rɛsɹlts. Lɛt us bɛ wɪlɪg tɪ du lɪtl,
 ɪf wɛ kɹnnɔt du a gɹɛt dɛl.

Kontrast ɛ ɹɹvɹntɛɹɔv ɔv ɛ n m mɔd ɔv speliʃ ɔvr ɛ ɔld, fɹ xr cɪl-
 drɛn. Hwɹt ɹn ɪmmɛns ɹmɹnt ɔv tɪm it wɹɹd sɛv ɹɛm. ɹɹn, tu, ɪn
 lɹnɪʃ fɹɹn lɹg wɛɹɛz, sɛ h x muc wɹɹd bɛ gɹnd bɪ bɛɪʃ ɹbl tɪ prɔnɹs ɛ
 wrɹd az sɪt. ɹvn ɪn prɔnɹnsɪʃ prɔfɛkɹnɹl trmz dɛɹɹvɹd frɔm fɹɹn lɹg-
 wɛɹɛz wɛ fɹnd muc dɪfɪkɹltɪ n x hwɪc wɹɹd bɛ ɔvrkum bɪ fɔnɛtɪks. ɹɹn
 kɔnsɪdr ɛ lɹɹɹ ɛkɔnɔmɪ it wɹɹd gɪv us ɪn bɹk mɛkɪg. A kumbrus bɹk ɔv
 fɹv hɹndɹɛd pɹɛz wɹɹd bɛ rɛɹwɹst tɪ ɹɹ hɹndɹɛd, and ɛ kɹst wɹɹd bɛ
 rɛɹwɹst ɪn prɔpɔrʃun. And wɹɹ ʌl ɹɛz ɹɹvɹntɛɹɔv, and mɛnɪ mɔr, ɹr
 ɹr nɔ dɪsɹvɹntɛɹɔv hwen wuns ɛstɹblɪkt. ɹr iz ɹɹɹɹɹɹɹ nɔ ɹɹfɹɹm ɪn
 lɪtrɛtɹ ɛkwɹl tɪ it, wɹɹ ɔnli xr prɛɹɹdɪsɛz ɹɹɹnt ɪt. Kɹn wɛ not ɹfɔrd
 tɪ dɪsmɪs ɹɛz fɹ ɛ ɹmɛns gɛn tɹ bɛ ɔbtɛnd?